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THE RELATIONSHIP BETWEEN BODY BUILD AND SERUM LIPOIDS AND A DISCUSSION OF THESE QUALITIES AS PYKNOPHILIC AND LEPTOPHILIC FACTORS IN THE STRUCTURE OF THE PERSONALITY.

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Previous studies in this laboratory of serum lipoids in men and women who were free from evidences of disease revealed a wide range in total fatty acids and cholesterol. Other workers in the field of the blood lipoids have reported similar wide differences between normal subjects, but have not commented on the significance of these variations.[1] It is only in the literature on constitution and on types of body build in relation to disease that these differences have been discussed and attempts have been made to discover some relationship between certain morphological characteristics and qualities of personality and the blood lipoids. Mjassnikow [2] found that the blood cholesterol of hypersthenics averaged 180 mgms. per cent and that of the asthenics 130 mgms. per cent. Tschernorutzky [3] has reported similar observations. Petersen [4] divided a group of 100 normal male subjects according to differences in a height-weight ratio. In the heavy group the average blood cholesterol was 225 mgms. per cent, while in the slender group it was 210 mgms. per cent.

These authors used the colorimetric methods for cholesterol, and paid little attention to the large errors inherent in these techniques. Furthermore, they have not indicated the manner in which they have ruled out possible endocrine dystrophies. A few individuals with mild myxedema would produce a marked elevation in the average cholesterols of the heavy group. The systematic attempts to discover a relationship between body build and personality characteristics date from the time of Hippocrates. Complicated systems of classification have been developed in Italy, Germany and France which at first sight appear to differ greatly from one an-

other. If, however, the complex subgroupings are ignored, it becomes clear that two large main groups stand out. These may be roughly denoted as the stocky in build at one pole as contrasted with the thin at the other. The megalosplanchnic [5] body build of the Italian school corresponds quite closely to Bauer's [6] brachymorphic and to Kretschmer's pyknic man. The opposite pole of body build which comprises the slender people is called microsplanchnic by the Italians, dolicomorphic by Bauer, and asthenic (leptosomic) by Kretschmer. When this simple bipolar classification of body build is utilized, it is possible to discover a relationship between physique and certain personality traits as well as a tendency to the development of certain diseases. For example, Kretschmer [7] has demonstrated that the people with a markedly pyknic habitus commonly have cyclothymic temperaments and tend to develop manic-depressive psychoses. People with the opposite habitus, the asthenic are, according to Kretschmer, commonly schizothymic or schizoid in personality and are peculiarly prone to develop schizophrenic psychoses. If there is any validity in these relationships it should be possible to demonstrate some sort of relationship between morphological features and the underlying biochemical structure.

Methods.—In order to obviate to some extent the difficulties encountered in attempting to classify people according to morphological characteristics we have resorted to the simplest form of bipolar grouping and have included at each pole only those subjects who represented relatively pure examples. The subjects who have been chosen for the stocky or heavy group have conformed in most respects to Kretschmer's description of the pyknic. This form of body build is characterized by the pronounced development of the body cavities which tend to be round and to have a relatively great antero-posterior diameter, by a tendency to a distribution of fat about the trunk, and by shoulders and extremities which are relatively slight in development in comparison to the trunk. The rough impression in well developed cases is very distinctive; middle height, rounded figure, broad face and rounded head on a short massive neck sitting between the shoulders; the magnificent paunch protrudes from the deep vaulted chest which broadens out toward the lower part of the body. The limbs are soft and rounded and display little muscle relief. The hands are soft, rather short, wide and rather delicately formed.

The subjects selected as representative of the slender group have corresponded roughly to Kretschmer's description of the asthenic (leptosomic). The essential characteristic of these people lies in a deficiency in thickness in contrast to the length and breadth of the body. This deficiency in thickness is present in all parts of the body. People conforming to this extreme form of body build are rather rare, and for this reason it was necessary to use subjects whose physique only approximated this description. Some of these people had fairly well developed muscles, but the antero-posterior diameter of their body cavities was short in comparison with the lateral diameter. The trunk was relatively small in comparison to their extremities, and they had long necks and elongated hands and feet. The term leptosome has been introduced by Kretschmer to denote these subjects.

The serum lipoids were also determined in people whose body build did not conform to either of these extremes and these subjects have been lumped together as an intermediate group.

In selecting the subjects the fact that endocrine disorders may affect the blood lipoids has been considered. For this reason all subjects with obesity that could not be explained by a large ingestion of food, or who showed symptoms or signs of thyroid or pituitary dysfunction or any dysplastic features in body build have been excluded from this study. The basal metabolic rate has been determined in the subjects with either high or low serum lipoids in order to rule out any suspicion of thyroid dysfunction.

Little difficulty was encountered in finding male subjects who conformed sufficiently closely in body build to either extreme as to leave no room for other observers to question their inclusion in one group or the other. Much more difficulty was encountered in finding female subjects who were uniformly pyknic or leptosomic.

The subjects were recruited, with a few exceptions, from various departments of the hospital and the university. They ranged in age from 18 to 50 years, had not changed weight by as much as 10 lbs. in the preceding four months, and with the exception of some of the female subjects were on unrestricted diets. All subjects were in the post-absorptive state when the samples of blood were taken from an arm vein. The methods for collecting the blood, extracting the serum, and measuring the total fatty acids and cholesterol have been described and the limits of error discussed

in previous papers.[8, 9, 10] The values of the total fatty acids are expressed in terms of milliequivalents (m.eq.) These may be changed to mgs. per cent by multiplying by 26.9.

In addition to the description of physique certain qualities of the personality have been selected and rated in roughly quantitative terms. The evaluations were worked out on a comparative basis for the group. In selecting these special qualities many of the concepts and terms described in Kahn's monograph on *Psychopathic Personalities* [11] have been utilized.

The difficulties encountered in estimating the strength of the impulse of a particular individual have made it necessary to be satisfied with an evaluation of the output of energy. Those persons who showed evidence of being able to work effectively both in the day and after dinner year in and year out, and who in addition carried on some social or athletic activities without becoming exhausted have been rated as +++. The people who worked only moderately well during the day and were forced to limit their social and athletic activities in order to maintain their relatively modest work record have been denoted as +. All of the people who did not unquestionably belong in one or the other of the above groups have been rated as ++. The evaluation of the output of energy has been derived from a comprehensive knowledge of the daily activities of each individual. The people who were successful in their particular fields because of intelligent direction and husbanding of their energies have not been rated as +++. On the other hand, some of the individuals rated as +++ have not necessarily stood out on the basis of their occupational accomplishments because of a remarkable diffusion of their activities and a preoccupation with social and athletic pursuits that required an enormous expenditure of energy and time.

The same individuals have been rated according to degrees of sensitivity and also of temperament as expressed in terms of warmth, the very sensitive and the warm being rated +++ and the relatively insensitive and cool as +. The intermediate group has been rated as ++.

An attempt to rate the above subjects according to qualities of introversion and extroversion proved unsatisfactory because there were not enough individuals who presented unqualified features of one or the other group.

As it was necessary to know these people quite well in order to evaluate the above qualities of personality with some degree of certainty, a complete study was made of only 19 women and 24 men.

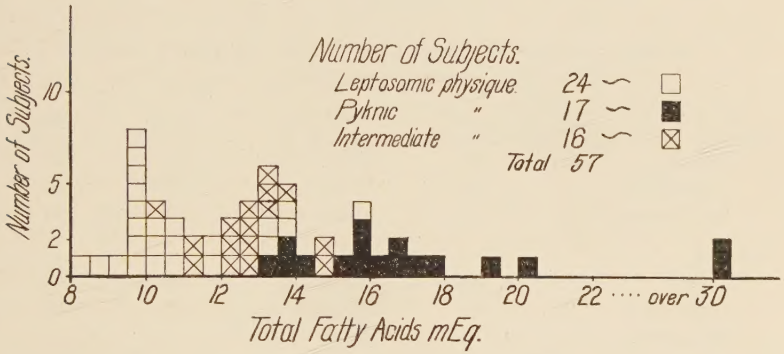

FIG. 1.—RELATIONSHIP BETWEEN BODY BUILD AND SERUM FATTY ACIDS OF NORMAL MALE SUBJECTS.

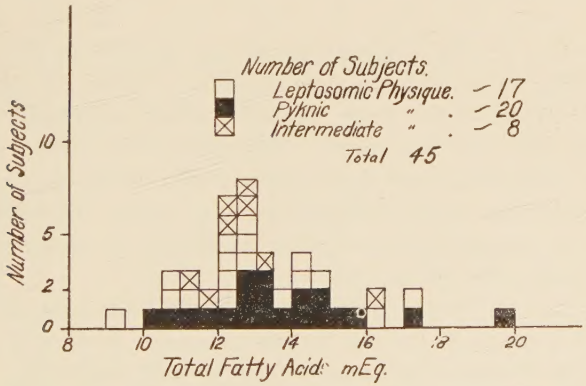

FIG. 2.—RELATIONSHIP BETWEEN BODY BUILD AND SERUM FATTY ACIDS OF NORMAL FEMALE SUBJECTS.

Observations.—The determinations of the serum fatty acids and their relationship to body build for male subjects are represented graphically in Fig. 1 and for the female subjects in Fig. 2. The fatty acids were measured on two different days in 9 of the subjects, and 10 or more times in 7 subjects, and only once in the

rest. The mean value of the measurements on each person has been included in the chart.

A summary of the data is presented in Table I.

TABLE I.

THE RELATIONSHIP BETWEEN BODY BUILD AND SERUM LIPOIDS.
SUMMARY OF TABLES.

Males: Physique.	No. of subjects.	Total fatty acids m. eq.	No. of subjects.	Cholesterol mgs. %.
Pyknic	17	Mean 17.3	12	230
Leptosomic	24	Mean 10.9	18	168
Intermediate	16	Mean 12.7	8	203
Females:				
Pyknic	20	Mean 13.6	19	205
Leptosomic	17	Mean 12.5	16	196
Intermediate	8	Mean 12.7		

A statistical analysis of the data on total fatty acids shows that in males the difference between pyknics and leptosomics is 8.7 times as large as the probable error of the difference.

For the females the difference is 2.5 times as large as the probable error of the difference.

Inspection of Fig. 1 reveals a striking relationship between low serum fatty acids and leptosomic physique of males. In the case of the pyknic males none of the subjects had low values and the great majority had high fatty acids. That there is a close relationship between body build and fatty acids is also borne out by the statistical analysis which indicates that for males the difference in fatty acids between pyknics and leptosomes is 8.7 times as large as the probable error of the difference.

This clear cut relationship between body build and serum fatty acids does not hold for the female subjects. In Fig. 2 there are apparently as many leptosomic females with high fatty acids as may be found in the subjects with pyknic physiques. It should be noted, however, that of the 49 female subjects the serum fatty acids were below 10 m.eq. in only one case, in contrast to the 12 leptosomic males below this figure. Furthermore, statistical analysis indicates that the pyknic females tend to have slightly higher serum fatty acids than do those of leptosomic physique, the difference being 2.5 times as large as the probable error of the difference.

Serum cholesterol as well as fatty acids was studied in 38 of these male subjects. These results as presented in Fig. 3 indicate that the level of serum cholesterol is directly related to body build as

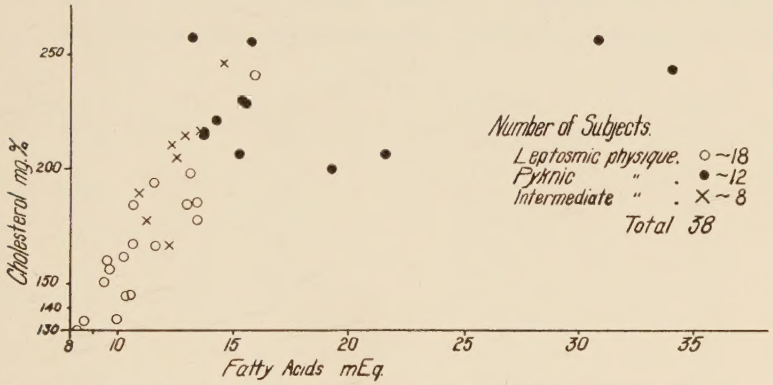

FIG. 3.—RELATIONSHIP BETWEEN BODY BUILD, SERUM FATTY ACIDS AND CHOLESTEROL IN NORMAL MALE SUBJECTS.

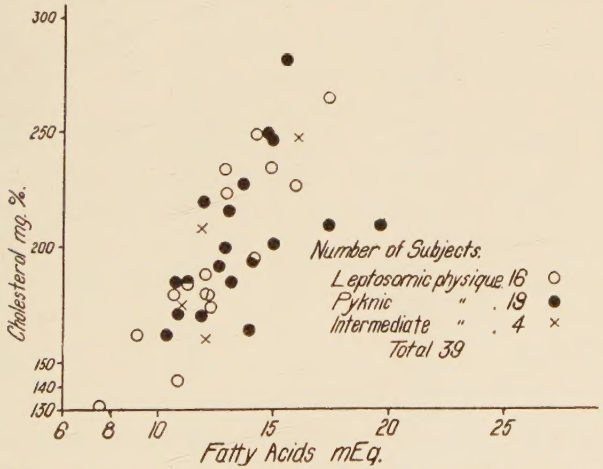

FIG. 4.—RELATIONSHIP BETWEEN BODY BUILD, SERUM FATTY ACIDS AND CHOLESTEROL IN NORMAL FEMALE SUBJECTS.

has been shown in the case of the fatty acids. A study of the cholesterol in addition to the fatty acids in 39 of the female subjects (Fig. 4) showed much overlapping. Although the mean cholesterol values for the pyknic group were slightly higher than

those for the leptosomic group, the differences were not sufficiently large to be statistically significant.

TABLE II.

RELATIONSHIP OF OUTPUT OF ENERGY TO PHYSIQUE AND LIPOIDS.

MALES.

Subject No.	Output of energy.	Physique.	T. F. A.
X	+ + +	P	17.2
W	+ + +	P	17.9
Q	+ + +	P	30.9
O	+ + +	P	14.3
J	+ + +	P	15.6
Total	5 + + +	5P	Mean 19.2
V	+ +	P	16.6
U	+ +	P	16.5
T	+ +	P	16.4
R	+ +	P	15.8
P	+ +	P	21.5
N	+ +	P	17.6
M	+ +	L	13.5
L	+ +	L	15.8
I	+ +	P	15.4
H	+ +	P	13.8
F	+ +	L	10.6
E	+ +	L	13.5
B	+ +	L	12.8
A	+ +	L	13.2
Total....	14 + +	6L 8P	Mean.. 15.2
S	+	L	9.6
K	+	L	10.0
G	+	L	9.5
D	+	L	10.8
C	+	L	11.7
Total	5 +	5L	Mean... 10.4

An analysis of the observations as to output of energy, warmth, sensitivity, physique, and amount of serum fatty acids, showed a definite relationship between output of energy and the serum fatty acids and body build. The qualities of warmth and sensitivity as

roughly quantitated in terms of +, + +, and + + + tended to be distributed indiscriminately regardless of kind of body build or level of serum fatty acids. Only the positive findings are presented in Table II in which it may be seen that all of the men who rated as + + + in output of energy were pyknic in physique and had

TABLE III.

RELATIONSHIP OF OUTPUT OF ENERGY TO PHYSIQUE AND LIPOIDS.

FEMALES.

Subject No.	Output of energy.	Physique.	T. F. A.
1	+ + +	L	17.5
3	+ + +	L	12.5
4	+ + +	L	13.6
5	+ + +	L	16.1
11	+ + +	P	14.7
Total	5 + + +	4L, 1P	Mean.. 15.0
6	+ +	L	12.0
7	+ +	P	10.4
8	+ +	P	14.2
15	+ +	P	12.0
16	+ +	P	9.6
18	+ +	P	14.9
19	+ +	P	11.5
20	+ +	P	17.4
Total	8 + +	1L, 7P	Mean.. 12.8
2	+	L	12.4
9	+	P	12.9
10	+	P	13.2
12	+	L	9.2
14	+	P	11.9
17	+	P	14.0
Total	6 +	2L, 4P	Mean.. 12.8

relatively high serum fatty acids. The men rated as + were all leptosomic in body build and had low fatty acids. The studies on the women (Table III) are again not clear cut but it is noteworthy that subjects rated as + + + in output of energy had high fatty acids with one exception. The subjects rated as + tended to have low or average values for fatty acids.

Discussion.—The wide range in serum lipoids, total fatty acids 8.3 to 34 m.eq., cholesterol, 130 to 280 mgs. per cent is similar to that reported by previous investigators. A number of workers have considered such high values abnormal and have attributed them to some obscure disease process. This is probably an unwarranted conclusion. Two of the male subjects included in the above report, one of whom had extremely high and the other very low fatty acids, 34 m.eq. and 8.3 m.eq. respectively, have been studied repeatedly over a period of a year. The high or low lipoids remained relatively constant and characteristic for each of these men and no evidence of either past or present disease process or endocrine disorder could be discovered. In fact both of these men were exceptionally healthy individuals. The lipoids of 6 other normal subjects have been followed for 1 to 3 years. Although certain seasonal fluctuations have been observed, the general level of the lipoids of each subject has remained relatively constant. It is therefore reasonable to conclude that high or low or average lipoids represent a fundamental characteristic of an individual's constitutional makeup. Furthermore the evidence presented in Figs. 1 and 3 indicates that in normal men there is a close relationship between pyknic body build and high lipoids on the one hand, and leptosomic physique and low serum lipoids on the other. In view of this close relationship between physique and lipoids it is suggested that the measurement of the lipoids should be used in the future as one method of discovering certain underlying pyknophilic or leptophilic qualities in a person. There is also the possibility that the level of serum lipoids may constitute a clue to a susceptibility to the development of certain diseases.

The evidence presented above as to the relationship between output of energy and lipoids cannot be considered conclusive. Yet it is sufficient to warrant the suggestion that the amount of serum lipoids may offer an indirect measure of the reserves or stores of energy in an individual.

In 1933 Kahn [12] pointed to the fact that no purely pyknic or leptosomic person actually exists, and that when it is considered that every person is the result of innumerable crossings, it is a marvel that there are so many individuals who correspond quite closely to one or the other of the two polar types. He also observed that the terms pyknic and leptosomic as generally used imply

morphological, functional and developmental factors which are related to two different sets of potentialities. He then suggested that these potentialities be termed pyknophilic and leptophilic in order to stress their significance in the determination of functional and evolutional types as well as their relationship to the two types of body build.

This concept has been applied in the evaluation of the data presented above. The morphological feature of body build denoted as pyknic has been considered as one pyknophilic manifestation. Serum fatty acids above 13.5 m.eq. have been taken as a second pyknophilic manifestation and as a sample of the biochemical

TABLE IV.

Analysis of the Pyknophilic and Leptophilic Qualities of Normal Men.

Number of P or L qualities.	Numbers of subjects from Table II.	Totals.
3P	j o g w x	5 } 13 P
2P	h i n p r t u v	8 }
1P	None	
1 P 1 L	a e m	3 Mixed
1 L	b	1 } 8 L
2 L	f g l	3 }
3 L	c d k s	4 }

1 P represents one of the three pyknophilic qualities.
1 L represents one of the three leptophilic qualities.
See text for description of these terms.

makeup of the individual. The exceptional output of energy rated as +++ has been considered as a third pyknophilic quality and as representative of the functional factors. In a similar fashion leptosomic body build, fatty acids below 11.5 and output of energy amounting to +, have been classed as leptophilic qualities. Fatty acid values lying between 11.5 and 13.5 m.eq. and output of energy rated as ++ obviously rank as intermediate values and have been neglected as neutral qualities. The results of this analysis are presented in Table IV. Only 5 of the 24 males possessed all three pyknophilic qualities (3P) but 8 rated as 2P with the third quality ranking in the intermediate group.

It is suggested that the 2P group is probably representative of the most common variety of male of pyknic physique. Eight of

the predominantly leptosomic men were free of one or the other of the pyknophilic qualities. Out of the entire group there were only 3 who possessed a pyknophilic as well as a leptophilic quality. These findings constitute further evidence that a demonstrable relationship exists among at least three of the functional and biochemical features that make up the person who represents a relatively pure form of either the pyknic or leptosomic body build.

A similar analysis of the data on the female subjects yielded results which lay in the same direction as in the case of the males, but there were 9 who possessed both pyknophilic and leptophilic features. Consequently the results in such a small series were rendered inconclusive.

That the results in the case of the females are not as clear cut as those for the males may be due to a number of factors. The variations in development of the breasts and the deposition of fat about the thorax and the pelvis make it extremely difficult to distinguish morphological types of females on a descriptive morphological basis that bears any close relationship to a similar classification of males. This difficulty has been recognized by previous workers. As noted above the dietary habits of many of the female subjects were decidedly different from the males in this group of subjects. Dieting might well account for some of the low values in the pyknic females but could scarcely account for the more striking exceptions because it requires an extreme degree of malnutrition to lower the serum fatty acids by as much as 6 to 8 m.eq.[13] Certain peculiarities in the endocrine systems of these female subjects that cannot be detected by present day methods may account for the low values in some of the pyknics and for the high lipoids in some of the leptosomic females.

In this connection it should be emphasized that obesity in a person is not necessarily associated with high lipoid values. This is true of a number of the normal female subjects. Also recent studies in this laboratory of obese subjects who displayed evidence of hypogenitalism, hirsutism and peculiar distribution of fat have disclosed low serum fatty acids and cholesterol.

The wide range in normal serum lipoids indicates that much caution must be exercised in interpreting moderately high or low values as being indicative of disease. For example, the subjects of pyknic physique with fatty acids of 25 m.eq. and cholesterol of

260 mgs. per cent in health might in the course of disease suffer a depletion of 30-50 per cent of their blood lipoids and yet remain within the range which would be normal for healthy male leptosomes. It is therefore necessary in the interpretation of the significance of any given set of serum lipoid values to consider among other things the physique of the person under study.

Conclusions.—Men in good health were selected from a university community on the basis of their conforming closely to one extreme or the other of a bipolar classification of body build. The individuals who corresponded in most respects to Kretschmer's description of the pyknic in physique represented one extreme, and the slender individuals, the leptosomes, the other extreme.

It was found that the serum lipoids, (total fatty acids and cholesterol) were consistently higher in the 17 men of pyknic body build than they were in the 24 men of leptosomic physique. The serum lipoid values of 16 normal men who were neither pyknic nor leptosomic in build were found to correspond closely to the mean value for all of the 57 males. The difference between total fatty acids of the pyknics and leptosomes was marked, being 8.7 times as large as the probable error of the difference.

The serum lipoids were studied in 45 healthy women who had been selected and grouped on the same criteria as for the men. The differences were not clear cut and there was much overlapping in the values. However, the serum fatty acids tended to be higher in the pyknic women than in those of leptosomic body build, the difference being 2.5 times as large as the probable error of the difference.

Pyknic body build, high energy output, and high lipoid values were considered as pyknophilic factors. Leptosomic body build, low energy output, and low lipoid values were considered leptophilic factors. Among the male subjects fair correlations prevailed; not so among the females. If psychological factors were added the correlations became increasingly unclear in both sexes.

These findings suggest that a relationship exists among at least three of the morphological, biochemical and functional factors that make up the person who represents a relatively pure form of either the pyknic or the leptosomic physique.

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THE CULT OF CURABILITY, ITS RISE AND DECLINE.

A Page From Psychiatric History.*

By ALBERT DEUTSCH.

The second quarter of the nineteenth century witnessed a remarkable phenomenon in the theoretical approach to insanity. We refer to the introduction and rise of a "cult of curability," involving an astonishing revolution in psychiatric theory in America, with tangible influences on the erection of state mental hospitals during the period of its ascendancy.

Up to the third decade of the century, the general attitude regarding the curability of mental disease was dominantly pessimistic. Despite the encouraging experiences of men like Rush in this country, and the Chiarugis, Pinels and Tukes abroad, it was widely believed that insanity was an incurable affliction. "Once insane, always insane," went the popular adage. About 1830, however, the pendulum of opinion on this subject swung violently to the opposite extreme. The old notion that none, or at best, very few, of the

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The *raison d'être* of this book is offered by Mr. Clifford Beers, founder of the Mental Hygiene Movement, who says: "My associates and I have, for a long time, felt the need for bringing together in one book of reasonable length, the story so ably and so readably presented by Mr. Deutsch in this new work. Behind his narrative lies a painstaking study of hundreds of treatises, reports, articles and pamphlets, as the index and bibliography of the book will show." The editor has had the privilege of reading a considerable portion of the manuscript of this work and believes that it represents a historical study of great value. The Journal is glad to print in advance a portion of one of the chapters.

The book, which will be illustrated, will contain about 350 pages and will sell for $2.50. Advance orders may be sent to the National Committee for Mental Hygiene, 50 West 50th Street, New York City.

mentally ill could be cured was suddenly discarded. In its place, the conviction took root that all, or nearly all, were curable. Wild claims were widely circulated, and given full credence, on the probabilities of recovery in mental cases. "Insanity is the most curable of all diseases," it was dogmatically declared. "At least 90 per cent of all cases of insanity can be cured," it was solemnly asserted. Extravagant claims indeed, when compared with the cold statistics of our time.[1] These, regrettably enough, indicate that even with our vastly improved methods of care and treatment, about 15 per cent of all cases admitted into state mental hospitals may be expected to recover, with an additional 25 per cent improved sufficiently to warrant discharge.

Around the aforementioned over-optimistic notions, there grew up a veritable cult of curability, numbering among its devotees not only laymen, but most of the superintendents of institutions for the insane. Indeed, it was the latter who contributed the major stimuli to the spread of the fallacy of easy curability. It is a regrettable fact that many among the psychiatric fraternity were fully conscious of the error of the doctrine they were advancing, or at least supporting. It may be said in extenuation that some who knew better paid lip service to the idea of large-scale curability in the sincere belief that they were promulgating a "white lie." They hoped thereby to gain a great end, namely, the establishment of more and better institutions for the mentally ill. Others deliberately doctored their statistics, crediting themselves with staggering recovery records, in order to stay abreast of their fellow practitioners who were doing the same thing. A vicious cycle of fallacies was thus kept in motion, fueled by the mutual desire, if not necessity, on the part of institutional heads to "keep up with the procession."

For the origins of this significant phenomenon, we must turn back to old England, the source of many practices and theories

[1] Of course, no inference is intended here that 90 per cent curability in mental disease is unattainable in the future. The terms, "cult of curability," "curability myth," etc., used in this article refer strictly to the extravagant claims and over-optimistic beliefs, as contrasted to extremely modest actual achievements, of the period under discussion.

The figures on expectation of recovery and improvement are based on the *United States Census Report on Mental Patients in State Hospitals, 1931 and 1932.* (U. S. Printing Office, Washington, D. C., 1934.) See Statistics on p. 10 of this pamphlet.

(not all equally commendable) adopted in America. Let us go back to King George the Third, whose reign, in certain broader respects, was of great importance in the historical development of the American nation.

King George the Third, as we know, experienced periodic attacks of mental illness, the last of which ended in his death. In his early attacks, he was attended by a remarkable person, Dr. Francis Willis. The latter was a minister turned physician who specialized in mental disorders and maintained a private asylum, from which he received very lucrative returns. The monarch reposed great confidence in him, and made him chief attendant, over the protests of the regular staff of royal physicians. In the course of the famous parliamentary investigation into the King's illness, held in 1789, Dr. Willis advanced the startling claim that he cured nine out of every ten mental patients he treated. Naturally, his assertion fell like a bombshell among a generation brought up in the belief that insanity was, with few exceptions, incurable. When asked to furnish proof of his claim, he could offer no definite figures on either the total number of patients he had treated, or the number that had been cured. When further pressed for specific data, he replied that his claim was based mainly on the grounds that the first 15 patients treated by him had recovered, and that subsequently as many as 10 patients at a time had been discharged as cured from his private asylum. His statement was ridiculed by most contemporary physicians, who suspected, not without reason, that Dr. Willis was somewhat of a charlatan. But the boast had an element of dramatic force which left a long-lasting impression.

In 1820, the question of high-percentage recoveries was again brought forward by Dr. George Man Burrows of England in a pamphlet entitled, *An Inquiry into Certain Errors Relative to Insanity*. It was one of the major theses of this little work that mental illness was far more amenable to therapeutic treatment than people supposed at the time. To consider insanity incurable was a pernicious error, Dr. Burrows declared. On the contrary, insanity was highly curable. As proof, he asserted that he himself had cured 81 per cent of all mental patients—including those in " a state of fatuity, idiocy and epilepsy "—in his private asylum. Of " recent " cases (meaning cases of less than one year's duration), he claimed to have cured an average of 91 out of 100. In all, Dr. Burrows

had treated 296 patients, a total which would hardly seem sufficient to draw any generalizations from, even if the alleged percentage of recoveries in this particular instance were substantiated. Dr. Burrows' book was widely read at home and abroad, and his contentions seem to have been uncritically accepted by many of his fellow practitioners.

Another book written by an Englishman proved a strong stimulus to the spread of the idea of large-scale curability in America. Curiously enough, the author was a man whose interest lay far afield from the subject of insanity, and the book was a tale of personal travels—a type of literature much in demand in that day. In the years 1827-28, Captain Basil Hall, a retired officer of the Royal Navy, made a tour through North America. Upon his return to Great Britain, he wrote a book on his travels which excited a great deal of interest and discussion.[2] In America he had visited a number of benevolent institutions, including the Retreat for the Insane at Hartford, Connecticut, which had been opened in 1824, and had set down his impressions in his book. Both the Retreat and its superintendent, Dr. Eli Todd (then recognized as the foremost American superintendent of a mental hospital) received his unstinted praise. He spoke of the "noble establishment" as "a model, I venture to say, from which any country might take instruction."[3] In substantiation, Captain Hall quoted a startling passage from the report of the Retreat for 1827, to the effect that, "During the last year, there have been admitted 23 recent cases, of which 21 recovered, a number equivalent to 91 3/10 per cent." This phenomenal record was then compared with statistics of the "most ancient and celebrated institutions in Great Britain," which could boast of only 34 to 54 per cent cures of recent cases. Furthermore, the figures in two "highly respectable institutions" in America each showed average recoveries in recent cases of only 25 and 31 per cent.

The remarkable claims of the Hartford Retreat very likely would have been buried in the dust-gathering pages of the original report were it not for the adventitious visit of Captain Hall and the remarks made in his widely-read book. America had not yet thrown

[2] Hall, Captain Basil. *Travels in North America in the year 1827 and 1828.* Philadelphia, 1829. 2 v.

[3] *Ibid.*, v. 1, p. 314.

off the yoke of the "colonial complex" which bound her to Britain culturally: opinions of English visitors on American manners, customs and institutions, favorable or otherwise, were still given exaggerated respect. Moreover, in this instance, the commendation from Captain Hall was particularly impressive since his general notes on American life and institutions were so contemptuous as to arouse great indignation on this side of the Atlantic.[4] Hall's remarks on the Hartford Retreat were repeatedly quoted in the American newspapers and periodicals. Largely because of the publicity received in this roundabout manner, the Retreat soon gained the reputation of being the most successfully operated institution for the mentally ill, not only in the United States, but in the whole world. Its unprecedented record of cures became a mark for the other institutions to aim at. A rivalry was thus set afoot which led to a fantastic race for high recovery rates. The immediate effect of the "curability craze" was beneficial in that it proved a potent factor in the building of public mental hospitals in the United States. But from the long-range point of view, the fallacy proved to be decidedly injurious. It led to an unhealthy competition among heads of mental hospitals that lasted many years. Grotesque methods of compiling institutional statistics were resorted to in order to keep alive the fiction. Finally, as we shall see, the reaction following the exposure of the fallacy had a decidedly harmful effect on the cause of the mentally ill. Nonetheless, during its period of ascendancy, the curability cult proved an important factor in the rise of state institutions for the insane in this period.

The claims of Willis and Burrows and the impressive record of the Hartford Retreat, founded though they were on the treacherous sands of unscientific statistics, were accepted at face value by an uncritical generation. Skillfully exploited as major arguments for the erection of mental hospitals they constituted, indeed, a powerful stimulus to the asylum-building movement during the 1830's and '40's. Of course, there were others factors favoring this trend,

[4] It is interesting to note that when Mrs. Frances Trollope's famous essay in derogation of the American people, *Domestic Manners of the Americans* was published several years later (1832), it was at first widely attributed to Captain Hall in the belief that he was the only foreigner unjust enough to cast such aspersions on the social life of the country. A saying of the time ran: "Either Captain Hall is Mrs. Trollope in breeches, or Mrs. Trollope is Captain Hall in petticoats."

some of which have already been described. Not the least among them were the really solid achievements of the early corporate hospitals (Frankford, McLean and Bloomingdale Asylum, and the Hartford Retreat itself). These institutions afforded impressive demonstrations of the truth that a fair proportion of the mentally sick *could* be cured. Their existence did much to dispel the hopeless atmosphere then surrounding the subject of care and treatment of the insane, and contributed to the optimism necessary to the advancement of the hospital idea.

About 1830, a vigorous movement that had for its object the erection of suitable state hospitals for the insane manifested itself simultaneously in several states. This movement found its first concrete expression in Massachusetts with the opening, in 1833, of the State Lunatic Hospital at Worcester.

A report drawn up the previous year by Horace Mann, as head of a legislative committee appointed to oversee the building of the state hospital at Worcester, reflected the changing attitude toward the curability of insanity. "Until a period comparatively recent," it stated, "insanity has been deemed as an incurable disease. The universal opinion has been that it was an awful visitation from Heaven, and that no human agency could reverse the judgment by which it was inflicted. During the prevalence of this inauspicious belief, as all efforts to restore the insane would be deemed unavailing, they of course would be unattempted. It is now abundantly demonstrated that with appropriate medical and moral treatment insanity yields with more readiness than ordinary diseases." This cheering doctrine had passed beyond the realm of mere theory, the commissioners proclaimed. It was already "established by a series of experiments, instituted from holier motives, and crowned with happier results, than any ever recorded in the brilliant annals of science." Where was their proof? They triumphantly pointed to the claims advanced by Willis and Burrows, and to the records of the Hartford Retreat, indicating, cumulatively, that fully 90 per cent of recent cases of mental illness could be cured. (Note the extreme to which the pendulum of opinion had swung, in its oscillations between pessimism and optimism!) The Worcester State Hospital was opened in 1833, under the superintendency of Dr. Samuel B. Woodward. In accordance with the recommendation of the Mann Committee, the first patients were drawn largely from the correctional institutions of the state.

Simultaneously with the agitation for a state hospital in Massachusetts, a similar drive was being pressed in New York. The movement in the latter state was initiated by the liberal governor, Enos T. Throop, in 1830, when he recommended in his annual report the appointment of a legislative committee to study the conditions of the insane. The legislature complied and, after a year of investigation, a committee turned in a long and learned report, ending with an urgent plea for a state hospital such as the one established in Massachusetts that year. The argument of near-perfect curability was again effectively put forward, in terms even bolder than in the Massachusetts commission report. Basing its claims on the statements of Willis, Burrows and the Hartford Retreat—this trinitarian authority was invoked in state after state by the proponents of mental hospitals [5]—the committee sweepingly declared that every case of mental disease was curable, "unless there be some structural defect, some mal-conformation of the cranium or the brain."

Knowing the ways of legislators, and the arguments best calculated to sway their judgment, the committee brought forward the argument of easy curability not only on humanitarian grounds, but on the even stronger basis of economy. As long as custody rather than cure remained the uppermost purpose of institutionalizing the insane, it was argued, hundreds of mental cases were condemned to life confinement, with no opportunity for curative treatment, at the expense of the public treasury. Now, if these persons were provided with hospital attention their stay in institutions, in a large number of cases, would be greatly shortened. In the long run, such a situation would result in considerable savings for the state. Moreover, those discharged recovered from a hospital could thenceforth take their places as producing members of society, with further economic benefits accruing to the state.

Condemning the prevalent methods of selling the insane poor at public auction or incarcerating them in jails and in the strong rooms

[5] It is interesting, in this respect, to point out that legislative reports of this period favorable to the establishment of state hospitals usually bore striking resemblances to one another. It was not uncommon for a report to consist almost entirely of direct quotations and paraphrases from previous reports submitted in other states. Passages bearing on curability and citing the three aforementioned authorities were invariably couched in identical phrases.

of county alms-houses, the committee charged that "the whole system as to pauper lunatics and idiots is radically defective. It makes no provision for recovery. It does not effect the best mode of confinement. It does not sufficiently guard the public from the consequences of furious madness. And it is the most expensive method of providing for them." [6] The legislature, however, was slow to respond to the eloquent plea of the committee, supplemented though it was by the repeated recommendations of Governor Throop and his successor, Governor Marcy. Important material factors were involved in the delay, namely, the financial crisis of 1834 and the severe economic depression of 1837, which turned the attention of the lawmakers to the problems of raising money rather than spending funds on "new fangled projects." It was not until 1843 that the first state hospital was finally opened at Utica, with Dr. Amariah Brigham as the first superintendent.[7]

In the decade between the opening of the hospitals at Worcester and Utica, nine new public hospitals for the mentally ill were opened in various parts of the United States. Seven of these were either state-owned or state-supported institutions. The Tennessee Lunatic Asylum at Nashville was established in 1832 and opened 1840. The Maine Insane Asylum at Augusta was established in 1834 and opened 1840. The Vermont Asylum for the Insane (later the Brattleboro Retreat) at Brattleboro was established in 1835 and opened 1836. The Ohio Lunatic Asylum at Columbus was established in 1835 and opened 1838. The Georgia Lunatic Asylum at Milledgeville was established in 1837 and opened 1842. The New Hampshire Asylum for the Insane at Concord was established in 1836 and opened 1842. In Pennsylvania, the department for the insane in the first American general hospital was removed to a site in West Philadelphia in 1841 as a separate institution, and was renamed the Pennsylvania Hospital for the Insane, with Dr. Thomas S. Kirkbride appointed as its first superintendent.

During this period, methods of reporting statistics on recovery rates and other matters in institutions for the mentally ill were

[6] *Report of the Select Committee on Bloomingdale Hospital and the propriety of building a new establishment for the Insane.* (*New York Assembly Documents,* 1831, v. 3, Document 263.

[7] "An Act to Authorize the Establishment of the New York State Lunatic Asylum" was passed March 30, 1836, but the ensuing depression of 1837 delayed its building, and it was not completed until 1843.

characterized mainly by confusion. The science of statistics was still in its infancy, and its application in the various fields of social phenomena was generally of a crude character. The excellent pioneering work of Esquirol (the worthy successor of Pinel at the Salpêtrière in Paris) was particularly effective in demonstrating the value of tabulating mental hospital records. There was, at first, a great deal of stubborn opposition to the introduction of statistical reporting. Many asylum superintendents ridiculed the idea. It was utter nonsense to attempt any kind of enumeration, they felt. Some authorities based their opposition to statistical reporting on the quite reasonable grounds that real knowledge concerning mental diseases—classification, causes, symptoms, cures, etc.—was still so meagre that no degree of accuracy could be attained through the use of statistical recording. In fact, they said, such reporting could only create misleading impressions. (This actually proved to be the case.) A heated controversy on this score was carried on throughout the 1840's, with Dr. Pliny Earle, an outstanding medical superintendent of the time, leading the statistical defenders. In an article published in 1849, Dr. Earle vigorously championed the use of enumeration against the attacks of sceptics. Admitting the prevailing weaknesses in statistical reporting on the part of American institutions, he wisely counseled that it was necessary not to abolish the practice, but to improve and to raise it to a really scientific level.[8]

A glance at the records emanating from mental hospitals during the period under discussion affords a significant index as to why a pessimistic view of the utility of statistics in this field was held even by many intelligent persons. Institutional tabulations were generally vague and contradictory, woefully lacking in either uniformity or precision of data. Take the tables of "Causes" of mental cases, which naturally occupied a prominent place in contemporary case reports. In the tabulated report of a famous institution, the ailments of five different mental patients were respectively attributed to "domestic trouble," "jealousy," "infidelity of wife," "ill-treatment of parents," and "abuse of husband." These blurred distinctions, it will be agreed, were hardly calculated to throw light on the individual cases. In some tables, the laconic etiological note, "dis-

[8] Earle, Pliny. "Statistics of Insanity." American Journal of Insanity, 1849, v. 6, p. 145-9.

appointment," was conveniently used to cover a multitude of ills. Others, with a greater attention to detail, but with hardly less confusion, laboriously enumerated the various types of "disappointments" regarded as the determining causes in many cases of mental illness: "disappointed love," "disappointed affection," "disappointed ambition," "disappointment in business," "frustrated enterprise," etc. Even the term "disappointed expectation" was entered as a supposed cause. Among other vague "causes" listed in contemporary statistics were: "ecclesiastical difficulties," "mental excitement," "mortified pride," "perplexity in investigating Scriptural prophecies," "novel reading," "tobacco," "ill health," "repelled eruption," "blasted prospects," "dread of a future state," "close mental application," and "Millerism." [9]

Another interesting feature found in early mental hospital statistics is an exaggerated emphasis on quantitative data, corresponding to a well-marked prevailing tendency in that direction. In general, this insistence on the importance of quantitative analysis of social phenomena was to exert a healthy influence. But in some instances it was carried to strange extremes. For example, the first annual report (1843) of the Utica State Asylum contains a table intended to serve as conclusive proof of the health-promoting effects of the institution, scrupulously measured in terms of masses. We present a specimen item from this table:

	Pounds.
Total weight on admission of 276 patients	34,856
Total weight of those discharged and remaining, December 1st	35,825
Increase in weight of all received	1,029
Total increase in weight of the 53 patients discharged cured	306

[9] "Millerism" was the popular name given to the doctrines of William Miller, who founded the Adventist sect in 1831. Miller predicted that the year 1843 would witness the end of the world and the commencement of the millennium. His prediction gained a remarkably wide circulation and acceptance, and many suicides were attributed to the terror induced by belief in its inevitable fulfillment. It undoubtedly was a precipitating factor in many cases of mental illness. In one year, 1843 (the year which Miller had prophesied, would witness the destruction of the universe) no less than 32 patients admitted into three different Northern institutions were officially recorded as victims of "Millerism."

Still another indication of the prevailing looseness and confusion in statistical reporting may be mentioned. In 1844, Dr. J. R. Allen, a deservedly well-known superintendent of the Eastern Lunatic Asylum at Lexington, Kentucky, set himself the ambitious task of compiling the statistics of the institution for the first twenty years of its existence. After listing an impressive percentage of patients "cured" during this period, Dr. Allen naively remarked that a large proportion of these "cures" so recorded were not actually so registered on the books, but that he had reported them "recovered" because there was no record of their condition at the time they were discharged.

Shocking though this might be to modern statistical standards, it constitutes but a mild indication of the liberties taken with figures during the heyday of the curability cult. What excesses of imagination went into the making of recovery statistics in that golden age of optimism!

We have traced, previously, the origin and early development of the cult of curability from Willis to the 1827 report of the Hartford Retreat, given wide publicity through the rather extraordinary medium of a light travel book written by a retired British naval officer.[10] The pleasing belief in easy curability which consequently took hold of the popular imagination was strengthened with the years as statistical reports seemed to prove that other institutions for the insane were not only equalling, but actually surpassing the Hartford Retreat record of 90 per cent cures. In fact, the climax was not reached until the claim of 100 per cent cures was finally advanced by at least two eminent superintendents of mental hospitals.

To what may we attribute these remarkable records, beside which our modest present-day claims of an average of about 15 per cent recoveries in institutionalized mental cases compare like candles to the sun? Is it because mental diseases were then of a less serious nature than they are today, and more amenable to treatment? Or was the system of therapeutics practiced in that period superior to

[10] No disparagement of the Hartford Institution is here implied. It was indeed one of the most estimable mental hospitals, as we have elsewhere stated. An explanation of the curious concatenation of errors behind these startling statistics is forthcoming.

present-day methods? Hardly. Where, then, may we properly seek an explanation of the phenomenal records of cures rolled up in the decades following 1830? Mainly, we think, in these directions: (1) the irresponsible, artless manner in which statistics on the subject were compiled; (2) the peculiar set of circumstances which encouraged otherwise level-headed institutional officers to perpetuate a fallacy of which many were conscious; (3) the convenient use of the term "recent" cases (meaning cases of anywhere from three to twelve months duration), upon which most generalizations regarding curability were based; (4) the confused notions as to the meaning of the word "recovery." Even today, the latter term when applied to mental diseases, necessarily lacks the precision that it connotes in most physical diseases. In the middle decades of the nineteenth century, many superintendents of mental hospitals waited only for a temporary return to "sanity" on the part of a patient to discharge him as "cured," and to record him accordingly.

Let us pursue the interesting history of the cult of curability subsequent to the Basil Hall incident. As has been noted, the record of the Hartford Retreat was brought forward by the friends of the insane in many states as a major argument in favor of establishing mental hospitals. To the legislators it proved an impressive point: obviously, great savings would result in building a hospital where the mentally ill could be cured easily and rapidly, instead of placing them in non-curative institutions where they would most likely remain heavy burdens on the public purse for life. Once such a hospital was built, the superintendent was expected to emulate the achievements in high-recovery rates which had been so vociferously brought forward before its founding, or to face severe criticism and perhaps discharge.

Such was the case with the Worcester State Hospital, the first to be erected in the 1830's. It was no accident that the Massachusetts authorities cast their eyes in the direction of the Hartford Retreat in seeking a suitable head for the new institution. Their choice fell first on Dr. Eli Todd, superintendent of the Retreat, who was forced to decline the offer because of ill health. (Dr. Todd died in 1833.) Dr. Samuel B. Woodward, active in the founding and management of the Retreat, was then appointed. This proved to be a fortunate choice. From his ascendancy to the head of the Worcester institution to his retirement in 1846, Dr. Woodward was

generally regarded, both at home and abroad, as the leading American authority on mental diseases.

Statistically, however, the attempt to emulate the Hartford Retreat record of cures got off to a poor start in the first year. Even with some loose handling of statistical data, the institution's first annual report showed less than 50 per cent recoveries of recent cases in relation to admissions.[11] The hospital authorities expressed their apologies for this supposedly low proportion of cures, explaining it on the grounds that many incurables had been transferred from jails and poorhouses to the institution during the first year. In the second year, however, the officers found an ingenious device for stepping up the statistics of recovery to a respectable plane. They adopted the simple but quite effective expedient of calculating the percentage of cures, not on the basis of the total number of patients *admitted* during the year, but of the total *discharged*. Thus, they were able proudly to declare in their annual report to the legislature:

> During the past year 199 patients have been received into the hospital; of these, 55 were old cases, and 64, recent ones. In the same period 115 have been discharged; of these, 49 were old cases and 66 recent ones. Of those discharged, 64 were cured. . . . . The cures amount to 55¾ per cent. . . . .
>
> Of the 49 old cases discharged during the year, 10 have been cured, 16 improved, 14 are stationary, four have died, and one has eloped—the cures amounting to 20½ per cent.
>
> Of the 66 recent cases, 54 have been cured, six improved, two stationary, and four have died—[*the cures amounting to 82½ per cent*].[12] (Emphasis mine—A. D.)

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[11] It is amusing to note, in this respect, that while in the years before the opening of Worcester, its founders had been loudly proclaiming the easy curability of insanity, selecting appropriate statistical support from the aforementioned sources, it was now deemed necessary, in mitigation of the comparatively poor record of the one-year-old institution, to cite figures of a quite contrary character. Before, the statistics on recent cases had been emphasized almost exclusively. In this first report we find the emphasis shifting to the opposite direction. Pointing out that a large proportion of the admissions into the hospital comprised chronic cases, the report stated: "Our hopes, in cases like these, can never be sanguine. But a small percentage of old cases are cured, in any of the best regulated Asylums in this country and in Europe. In the far-famed Retreat in Hartford . . . . only 14 per cent of the old cases are reported to have been cured. In the Glasgow Lunatic Hospital, 13 per cent; in the York Asylum, 12 per cent, etc."

[12] *Second Annual Report of the State Lunatic Asylum at Worcester*, 1834, p. 5-6.

This method of computing the percentage of cures on the basis of discharges instead of admissions naturally resulted in figures bound to impress. Average cures amounting to more than 55 per cent, and cures of recent cases to more than 82 per cent compared very favorably even with the vaunted Hartford Retreat. They overshadowed by far the more cautiously compiled records of eminent European institutions, and the authorities were not backward in pointing out this element of apparent superiority in their report. Of course, they conveniently neglected to explain the different techniques employed in arriving at these ratios. The observant eye, to be sure, could apprehend the unorthodox tabulating devices of the Worcester Hospital, but to the untrained and casual general reader the proportion of cures claimed were accepted at their face value.

During the next few years, the recovery percentages at Worcester mounted steadily until in 1840, Dr. Woodward announced that the cures in recent cases (in proportion to the total discharged) had reached the awe-inspiring point of 90 per cent.

The belief (based on the reports of cures of recent cases) that insanity was easily curable, if treated early enough, rapidly impressed itself on the public and professional mind, and soon reached the plane of established, immutable dogma. But what of the psychiatric profession as a whole? Did it raise any objections to the spread of this fallacy? On the contrary: except for a very few instances, it not only subscribed wholeheartedly to the current misconceptions, but stimulated and strengthened them as best it could. Let us cite a few representative opinions from the most eminent medical superintendents of the day as an indication of the lengths which the delusion reached. As early as 1835, Dr. Woodward made this categorical statement, which was widely quoted for many years after: "In recent cases of insanity, under judicious treatment, as large a proportion of recoveries will take place as from any other acute disease of equal severity."[13] Two years later Dr.

[13] Eight years later, Dr. Woodward's optimism regarding curability progressed sufficiently to permit him to go even beyond this comparison. In his annual report for the Worcester Hospital in 1843, he states: "I think it not too much to assume that insanity, unless connected with such complications as epilepsy, paralysis, or general prostration of health, is *more* curable than any other disease of equal severity; more likely to be cured than intermittent fever, pneumonia, or rheumatism." (Emphasis mine—A. D.)

Amariah Brigham, who soon after became the first superintendent of the Utica State Asylum, declared in an article appearing in the *North American Review:* " It is gratifying to be able to state that no fact relating to insanity appears better established than the general certainty of curing it in its early stage." Quite as optimistic was the declaration of Dr. Luther V. Bell, head of the McLean Asylum in Massachusetts, who, in his annual report for 1840, averred: " The records of this Asylum justify the declaration that *all cases, certainly recent*—that is, whose origin does not, either directly or obscurely, run back more than a year—recover under a fair trial. This is the general law; the occasional instances to the contrary are the exception." Even the famous superintendent of the Pennsylvania Hospital for the Insane, Dr. Thomas S. Kirkbride, fell victim to the infectious cult of curability. In his report for 1842 we find this grave assertion: " The general proposition that truly recent cases of insanity are commonly very curable, and that chronic ones are only occasionally so, may be considered as fully established." Dr. Pliny Earle, who later did more to explode the curability fallacy than any other individual, wrote in his report for 1845 as attending physician of the Bloomingdale Asylum in New York: " When the insane are placed under proper curative treatment in the early stages of the disease, from 75 to 90 per cent recover." [14]

The significance of these quotations is enhanced when we realize that all those we have cited were among the founders of The American Psychiatric Association, organized in 1844, that they were all prominent in their profession, and that their views were substantially endorsed by all of their contemporaries in America. In some of the general declarations of easy curability advanced by medical superintendents, cautious qualifications appeared, but even in such instances the qualifying words were lost on the general reader whose attention was usually focussed on the high-percentage recovery figures to the exclusion of all else.

[14] In his first report as medical head of the Bloomingdale Asylum (1844) Dr. Earle had written: " It appears to be satisfactorily proved that, of cases in which there is no eccentricity or constitutional weakness of intellect, and when the proper remedial measures are adopted in the early stages of the disorder, no less than eighty to every hundred are cured. There are but few diseases from which so large a percentage of the persons attacked are restored."

Meanwhile, institutions for the insane continued to engage in a fierce, if concealed, rivalry with one another in setting up impressive recovery tables. Higher and higher rose the claims of cures reaching fantastic heights, even dwarfing the claims of Willis and Burrows and the record of 1827 which had suddenly catapulted the Hartford Retreat into world prominence. Well into the 90's soared the percentages of cures claimed in recent cases. It only waited for some enterprising superintendent to ring the bell at 100 per cent. In his 1842 report as head of the Eastern Asylum for the Insane at Williamsburg, Virginia, young Dr. John M. Galt made a conditional claim to this ultimate result. Of 13 cases of recent insanity that had been admitted into the institution during the preceding year, he declared, twelve, or 92.3 per cent of the total, had been discharged cured. The thirteenth patient had inconsiderately died, apparently causing the hospital to fall just one short of the perfect goal. But with the characteristic intrepidity of the time, our youthful superintendent was resolved not to let this factor stand as a serious obstacle in the way of the perfect score. With disarming naïveté, he dismissed the demise in this fashion: "If we deduct this case from those under treatment, the recoveries will amount to 100 per cent!" [15] Carried away by the achievement thus obtained, he concluded: "From such facts as the above, I am led to believe that there is no insane institution, either on the Continent of Europe, in Great Britain, or in America, in which such success is met with as in our own."

However, this remained a conditional record. The maximum, unconditional claim was yet to be pronounced. It was not long in forthcoming. In the very next year, 1843, Dr. William M. Awl of the Ohio State Lunatic Hospital at Columbus announced the attainment of the *ne plus ultra* in a laconic finale to his statistical report: "Per cent of recoveries on all recent cases discharged the present year, 100." Note the fact that here, as in the case of Woodward of Worcester, the ratios are based on *discharged* cases, and

[15] Dr. Galt was by no means lacking in precedent for making this deduction from his computations. It was not unusual for institutional heads to put aside the dead in figuring the proportions of cures in order to give their statistics a more impressive dressing. Carried to its ultimate conclusion, this practice would permit institutions listing one recovery and 99 deaths out of 100 recent cases to claim 100 per cent cure.

not on admissions. Howbeit, the record advanced by Dr. Awl, the distinguished head of the Ohio institution, gained him the sobriquet, among contemporary wits, of "Dr. Cure-Awl."

By this time, however, voices of protest were beginning to be raised against the excesses of the cult of curability. These voices were feeble and cautious at first, but gained strength and numbers with the passage of time. Dr. Isaac Ray, in his first report as superintendent of the Maine Insane Asylum in 1841, voiced his dissatisfaction with the misleading and wholly arbitrary practice of separating the mentally ill into "recent" and "old" cases, a practice which formed one of the main pillars in the structure of mathematical curability. "I have adopted this classification," he said, "in deference to the practice now somewhat common in New England hospitals; but I must be allowed to express my conviction that the distinction is without any precise, well-marked difference, and had better be abandoned." In his next report he added: "Nothing can be made more deceptive than statistics; and I have yet to learn that those of insanity form any exception to the general rule." So strong, however, was the current of the curability mania that Dr. Ray felt constrained to swim along with the tide as far as his statistical reports were concerned, employing under protest the methods of his contemporaries in achieving high recovery rates. About 1850, a number of critics of the current statistical fallacies arose among asylum superintendents. Prominent among these early protestants were Dr. James Bates, successor of Ray at the Maine Insane Asylum, Dr. S. Hanbury Smith of the State Asylum at Columbus, Ohio, and Dr. Andrew McFarland of the New Hampshire Asylum at Concord. Their criticisms were directed mainly at: (1) the arbitrary separation of "recent" and "chronic" cases, a convenient device for gaining statistical advantages; (2) the method of calculating recovery ratios on the basis of discharged cases; and (3) the loose, ambiguous use of the terms "cured" and "recovered."

In 1845, Dr. John Thurnam, resident medical superintendent of the York Retreat in England, published a book entitled, *Observations and Essays on Statistics of Insanity,* wherein he came to rather gloomy conclusions regarding the curability of mental diseases. Basing his remarks on a study of case histories of 244

persons treated at the York Retreat, he formulated this generalization:

> In round numbers, of ten persons attacked by insanity, five recover and five die, sooner or later, during the attack. Of the five who recover, not more than two remain well during the rest of their lives; the other three sustain subsequent attacks, during which at least two of them will die.

This conclusion, based on painstaking statistical research, had a chastening effect on institutional "enumeration" not only in Great Britain (where the tendency to exaggerate recovery rates also prevailed, though to a lesser extent), but in the United States as well. Superintendents began to tone down curability statistics, or to drop them from their reports entirely. (Dr. Kirkbride of the Pennsylvania Hospital was among the first to adopt the latter course.) The cult of curability, which had reached its peak of optimism between 1840 and 1850, experienced a gradual deflating process. The pendulum began to swing back to the opposite extreme. So far backward did it swing, in fact, that Dr. Luther Bell, whose confident belief in 90 per cent curability we have quoted, expressed this radically different point-of-view in 1857: "I have come to the conclusion that when a man once becomes insane, he is about used up for this world."

The curability cult lingered on for many years, however. To Dr. Pliny Earle, who was one of its early devotees, must be given the credit for dealing the fallacy its death-blow. Possessing an inquisitive and thoroughgoing turn of mind, Dr. Earle began to question the validity of contemporary statistics on curability. His doubts deepened with time, and finally led him to enter upon a comprehensive study of the matter. He spent years of intensive research, going far beyond the limits of Dr. Thurnam's work. The complete records of many American institutions for the insane were carefully combed by the indefatigable Dr. Earle. The first results of his many years of investigation were published in the annual report of 1875 for the Northampton State Hospital in Massachusetts, of which Dr. Earle was then superintendent. Additional installments appeared in later reports, and were finally gathered together in a book, *The Curability of Insanity*, published in 1887.[16]

[16] The findings of Dr. Earle on statistics of insanity may be found in condensed form in a paper read by him before the National Conference of Charities

The revelations contained in these studies had a profound and healthy influence on the subsequent course of statistical reporting in American mental hospitals.

A major factor in the apparent high ratio of cures in institutions for the insane, Dr. Earle found, lay in the abuse of the word "recovered," and in the failure to distinguish properly between the words "case," "patient," and "person." In very many instances, the same person was discharged "recovered" from an institution a number of times within a few years, or even in the space of one year. In the statistical reports of the time, the reader was given no intimation that the same *person* might appear as several "recovered *cases*" in the record. Thus, Dr. Earle relates, one woman was discharged recovered six times at the Bloomingdale Asylum, and another seven times at the Worcester Hospital, each within the space of one year. In neither instance was any hint given that the number of *cases* which swelled the percentage of recovery figures was not identical with the number of *persons* treated. Incidentally, the woman who contributed six "recoveries" to the record of Bloomingdale in one year, was reported cured no less than 46 *times* before her death—which took place in an insane asylum. Dr. Earle also discovered that the obliging woman who recovered seven times in one year for the greater glory of Worcester had been discharged as cured nine times in the two preceding years, making 16 recoveries in three years.

The records of other institutions were replete with similar cases. In five asylums the records of which were examined by Dr. Earle, 40 persons were reported cured no less than 484 times, averaging more than 12 recoveries each. Three women alone were admitted as patients into mental hospitals an aggregate of 118 times, and were discharged recovered, and placed in the records as such, 102 times. Two of these finally died insane. In one institution, seven women were reported recovered a total of 92 times. Naturally, the uninitiated reader took it for granted that the number of cases was identical with the number of persons admitted, and since the statistics were very seldom accompanied by explanations pointing out this vital difference, he readily fell victim to the fallacy. No wonder

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and Correction in 1879. (*Proceedings of the Sixth Annual Conference,* 1879, p. 42-50), and in his article on "Curability" in the *Dictionary of Psychological Medicine,* edited by D. Hack Tuke. (London, 1892, v. 1, p. 321-24).

that the English medical superintendent, Sir James Coxe, in discussing institutional statistics on the insane wrote of "that spirit of inflation which is a too prevalent characteristic of writers of this branch of medicine." No wonder that the American, Dr. James Bates, drily noted that "they [statistical reports of cures] were received with wondrous admiration by that portion of the public who are better pleased with marvellous fiction than with homely truth."

But the myth of easy curability lasted long and died hard. Its tenacious survival is indicated by the fact that, when Dr. Earle began publishing his epochal studies on recovery statistics in 1875, most establishments for the mentally ill in America still subscribed to the hypothesis that insanity was easily curable. His findings were bitterly attacked (with more emotion than reason) by many of his contemporaries, including some leading medical superintendents. The wealth of evidence he brought forward, based on years of exhaustive research, created an impregnable wall of proof. But this fact did not save Dr. Earle from the calumnies of men who found offense in conclusions that had the effect of exploding a convenient, comfortable and long-standing hypothesis, erroneous though it be.

Once the cult of curability was dealt its death-blow, however, a period of reaction set in, the unfortunate effects of which are still observable to-day. Disillusioned, the public cast off the cloak of false optimism that had been woven with the warp of error and the woof of short-sighted opportunism. Instead, popular opinion respecting the curability of insanity became mantled in extreme pessimism. And long after a real basis for optimism was established with the firm materials of scientific knowledge, the ancient saying, temporarily discarded during the curability craze, once more echoed a dominant attitude: "Once insane, always insane!"

ANTIRETENTIONAL THERAPY IN CONDITIONS ASCRIBED TO INTRACRANIAL LIQUID ACCUMULATION.*

By EUGENE FÖLDES, M. D., New York City.

I should like you to imagine a hospital ward where the beds are occupied exclusively by patients suffering from convulsions of various origins, such as convulsions associated with uremia, eclampsia of pregnancy, eclampsia of infancy and epilepsy. Let us assume the simultaneous occurrence of paroxysms in all the patients. Led into this imaginary ward at this time and confronted by the dramatic occurrences manifested by patients afflicted by such convulsions, an unbiased non-medical observer would undoubtedly arrive at the conclusion that all these patients were suffering from an identical ailment. Stopping before the bed of a convulsive uremic patient, and being informed by the internist that there is little doubt that in such cases the convulsions are due to intracranial accumulation of fluid irritating cortical motor centers, the medically untrained observer would be unsafe in concluding that the same factor might be instrumental in producing the attacks in the other patients as well. The obstetrician, for example, would quickly enlighten him as to the erroneousness of such an assumption. Toxic substances accumulated in the body of the pregnant woman would be pointed out as responsible for the convulsions in eclampsia of pregnancy and the dissimilarity of the condition called toxemia of pregnancy and of the other convulsive states emphasized, notwithstanding the apparent identity of the convulsions. The pediatrician would similarly deny the influence of identical factors in eclampsia of infancy and the other convulsive states. Impressed by the disturbed mineral metabolism so frequently found in eclampsia of infancy, he would point out the significance of the low calcium content of the blood in producing muscular spasms and would suggest the term of spasmophilia to designate this condition. As to epilepsy, " idiopathic " would be the term offered by the neurologist, thus widely separating epileptic convulsions from the convulsions

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

of uremic and eclamptic patients, and he would perhaps hint at vasomotor disturbances as the underlying cause of the epileptic attacks.

This was the state of affairs not so long ago and is generally so perhaps even today. Specialists in medicine, obstetrics, pediatrics and neurology moving within the circle of their respective fields, built up independent theories without giving consideration to the ideas evolved in other special fields, and emphasized the differences rather than the similarities there existing. And although occasionally the theory has emerged that in one or the other of the conditions enumerated, the mechanism leading to convulsions is made up of an intracranial accumulation of liquids and a consequent irritation of the cortex, such theories were soon to be discarded and forgotten. There seemed to be good reasons for rejecting the assumption that an identical mechanism, that is to say an intracranial liquid accumulation, plays a part in the development of all of the convulsive states. It seemed comprehensible that intracranial liquid accumulations should occur in uremia resulting from glomerulonephritis or nephrosis, in which there are visible retentions of liquids in the form of edemas throughout the body, and in which such retentions can be explained by the presence of insufficient kidney function. But there seemed to be no good reason to assume general liquid retention throughout the body, and thus also its local accumulation within the cranium, when in eclampsia of infancy and epilepsy visible edemas were absent and no kidney disease or circulatory failure were found to account for water and mineral retention. Even when visible retentions were present such as occur in many cases of eclampsia of pregnancy, or the presence of invisible retentions was proved by measurements of the intake and output of liquids and by measurements of the body weight, as in cases of epilepsy, these findings were brushed aside as coincidental occurrences having no significance in the pathogenesis of the attacks. And yet, for the past few years, evidence piles up indicating not only the pathogenic significance of intracranial liquid accumulation in all convulsive states, but also indicating the presence of generalized retentions throughout the body, the same as in convulsive uremia, although to a lesser extent.

To have proved the pathogenic significance of local intracranial liquid accumulation in the convulsive states and to have added to

our knowledge of its genesis is the great merit of Temple Fay and his associates. For my part, I have endeavored to present the local intracranial liquid retention as a part of generalized retentions occurring throughout the body and I attempted to analyze the factors which may lead to such retentions in the absence of kidney disease or generalized circulatory disturbances. I have also attempted to show that intracranial liquid accumulation in association with general retentions throughout the organism plays a significant rôle in migraine. I wish to direct your attention to the fact that headaches, vomiting and visual disturbances, often precede uremic and eclamptic convulsions, frequently follow epileptic attacks or occur instead of such convulsions, as so called equivalents. The consideration that the headaches, etc., associated with convulsions are due apparently to the same pathogenic factors as the convulsions themselves, that is to say, to intracranial liquid accumulation, led to the investigation whether or not the symptom-complex of migraine, which also consists of headaches, vomiting, visual disturbances, etc., is similarly due to intracranial liquid accumulation. It seemed to me that this question could be answered in the affirmative, and on account of these apparent pathogenic similarities, migraine will be included in the discussion to follow.

Turning now our attention from the problems of pathogenesis to those of treatment, it seems obvious that if the significance of the rôle of liquid retention in the pathogenesis of the convulsive states and migraine is admitted, a rational therapy should consist of the prevention of accumulation of liquid in the organism and the elimination of liquid previously accumulated. This is the theoretic basis on which we should attempt to build the therapy. If, then, with this in mind we make a survey of the possible means of ridding the body of excess fluid and preventing its subsequent recurrence, or in other words should we attempt to establish an antiretentional treatment of the convulsive states and migraine, the attention is first drawn to the utilization of diuretics. Yet a serious obstacle to the utilization of diuretics is their unreliability, as there is not one which is effective in all cases nor at all times in the same case. The toxicity of certain diuretics, such as mercury preparations and the undesirable by-effects of others, such as that of caffein on sleep or of theobromine on digestion should also be mentioned. There is, however, one diuretically active substance, the administration of which

is apparently free of harmful by-effects and, if proven to be reliable, deserving of further trial in cases in which dietary therapy meets with difficulties. I refer to the administration of liver extract, used in pernicious anemia, the diuretic action of which is well known. In one case of epilepsy in which I gave it intramuscularly in intervals of two weeks with a small additional oral dose of iron, grand mal attacks which previously developed once in three to four weeks did not recur, although the petit mals persisted and became more frequent. Also in cases of migraine, with oral administration of liver extract I noted diminution in the frequency or severity of the attacks, in most instances. It should be emphasized that this effect was observed regardless of whether anemia was present or absent. Consequently the contention that the mechanism of this pharmacological action consists of the effect of liver extract on the morphological composition of the blood cannot be maintained. In general, however, the results obtained by the employment of liver extract are less favorable than those obtained by dietetic therapy, so that a trial with the former should be resorted to only in cases in which the latter is not feasible.

In contradistinction to such objections as may be raised to a therapy by diuretics different conditions are met with if the attention is directed to a consideration of the nutrition as a possible method of a therapy of the convulsive states and migraine. Not only is a well chosen diet obviously non-toxic and without any improper by-effects, but it can also be expected to rid the body of excess liquid and prevent its subsequent recurrence. The expectation that it might thus be possible to adapt the nutrition to the therapy is justified if consideration is given to the important observations which show that certain factors in the diet have a very effective diuretic and others a definite retentional influence on the organism. Accepting these observations as a basis upon which the therapy is to be built, the diet evidently should consist of a liberal quantity of such food substances as have a diuretic action, with a restriction of those food substances which produce retentions.

Upon this principle I have developed a diet which I call *antiretentional* and which I describe in detail in a work published in 1933. The most important features of the antiretentional diet are as follows:

It is rich in proteins, aiming at the utilization of their diuretic action. The amount of proteins administered is from approximately 1.5 to 1.8 gm. per kilogram ideal weight. The proteins administered should consist to a large extent of meats and particularly in the initial stages of the therapy, of substances rich in nucleoproteids, such as liver, kidney, sweetbread, sardines, etc. In the antiretentional diet special consideration must be given to the nucleoproteids on account of the action of one of their constituents, the purin substances, which are chemically related to the diuretics of the caffein group.

Among the restrictions in the diet, one of the most important is that which refers to the carbohydrates. Restriction of the carbohydrate intake is necessary in the antiretentional diet on account of the retention of liquid which follows the ingestion of carbohydrates in large quantities. I found it advisable to begin treatment with the administration of approximately 2.5 gm. of carbohydrates per kilogram ideal weight, and later gradually to increase this quantity to the level which is necessary to maintain the body weight.

Restriction of the intake of fats is also necessary in the dietary therapy of the convulsive states and migraine, because the ingestion of fats is followed by a retention of liquid in the same manner as after the ingestion of large amounts of carbohydrates. It has been my procedure to fix the amount of fats at from forty to fifty gm. daily, irrespective of the body weight. Since the administration of both carbohydrates and fats seems to be followed by liquid retention, antiretentional results can also be expected from a diet containing additional fats if this is compensated for by a restriction of the carbohydrate intake below the amount previously stated. The effect of the ketogenic diet with its low carbohydrate, high fat content can thus be explained by assuming an effect on the water and mineral metabolism rather than on the hydrogen ion concentration of the blood. Yet a low fat diet, which is only moderately restricted in carbohydrates, more closely resembles the normal mixed diet, and for this reason this combination as incorporated in the antiretentional therapy is generally more acceptable and followed by patients with greater fidelity, than a low carbohydrate, high fat nutrition as suggested in the ketogenic diet.

With reference to the intake of sodium chloride, on first thought a severe restriction would seem necessary, as it is in edematous

conditions for the purpose of reducing liquid retention. Nevertheless in the antiretentional diet it seemed to be sufficient to instruct the patients to use salt in their food with moderation and to avoid distinctly salty food, such as soups, herring, etc. While the effectiveness of this therapy—without the complete elimination of salt in the diet—was demonstrated by the results obtained, certain cases which showed insufficient improvement made it necessary to attempt a further improvement of the diet. Seeking a solution to this problem, several patients who did not respond with complete satisfaction to the treatment, were advised to abstain from the use of salt in cooking their meat and vegetables, and told to use it in specific amounts on this food after it was prepared. For this purpose from one to two gm. were allowed daily. The patients were not required to eat special bread prepared without salt and were occasionally permitted to have cheese, which also contains some salt. The results, however, were not uniform, so that additional observations are obviously necessary in this direction. At the present time it seems to be advisable to make an attempt with the salt-poorer form of the antiretentional therapy in those cases in which the response to the moderately salt-poor form of the diet is not quite satisfactory.

A significant measure in the antiretentional management is the restriction of the liquid intake. The amount I usually administer varies between one and one and a half liters including the fluid content of the fruit.

As to the vitamins, obviously all of these must be considered in any nutritional system, planned for prolonged usage, in order to avoid the various forms of avitaminosis or hypovitaminosis. Excessive administration of vitamins must also be avoided, however, so as to prevent the harmful effects of hypervitaminosis.

Finally consideration should be given to the caloric requirements. A high calory diet is necessarily either a high carbohydrate or a high fat diet or both, and consequently leads to liquid retention. The diet lowest in calories, that is to say a starvation diet, is followed by elimination of retained liquid in the initial stages. Accordingly the diet used in the convulsive states and migraine should be a low calory diet, particularly in the beginning. In the later stages of the antiretentional dietary therapy, the caloric intake should be gradually increased, because a chronic undernutrition is followed by retention

of liquid, similarly as is the intake of a high calory diet. One should be guided by the observation of the body weight, increasing the caloric intake to the point at which the weight of the patient is stabilized somewhat below or above the ideal figure. For this purpose carbohydrates may be used in preference to other food substances, keeping the protein and fat content of the diet unchanged. Carbohydrates are preferred to fats because of the effect of the former in filling up the glycogen depots of the liver and the consequent favorable effects on the general health.

In addition to the diet, phenobarbital was administered in all cases of epilepsy and in such cases of migraine as showed symptoms of nervous irritability or insomnia. In the choice of phenobarbital as a sedative consideration was given to its stabilizing effects on the water and mineral metabolism, it having been shown that under certain circumstances it may prevent retention of liquids.

The argument was advanced that if favorable responses were obtained by the antiretentional therapy, they might have been due to the well known effects of phenobarbital rather than to those of the diet. Yet this diet either by itself or together with such small doses of phenobarbital as one-fourth of a grain, four times a day, was effective in cases in which much larger doses of phenobarbital without the diet were not followed by noticeable improvement.

Another valuable adjuvant to the antiretentional diet is the administration of small doses of atropine sulphate. The main reason for including atropine in the antiretentional therapy was its dilating effect on the smallest blood vessels of the skin. It was expected that through the better circulation thus produced chlorides and other mineral substances might be carried away from the skin and offered to the kidneys for elimination to a greater extent and hence the retention of mineral substances and the consequent retention of water lessened. This expectation was based on the fact that of the chlorides introduced into the body the largest percentage is stored in the skin. The administration of atropine was put to a test in cases of migraine only, thus far; but in these, its addition to the diet, either in itself or in association with phenobarbital, accomplished additional improvement in patients in whom the response to the therapy was not previously complete.

Aside from the diet and medication, everything in the life of a patient suffering from one or the other of the convulsive states or

from migraine should be regulated from the standpoint of avoiding the retention of liquids. Thus, in the treatment of the frequently encountered constipation, enemas, which may lead to absorption of some of the fluid and subsequently to its retention in the tissues are to be avoided, and in the treatment of constipation some of the mechanically active agencies, such as the agar-agar or mineral oil preparations, should be administered. Omission of meals, strenuous physical work, prolonged exposure to sunshine, may also be followed by undesired influences on the water and mineral metabolism and are consequently to be controlled. And generally speaking, all aspects of the everyday life of the patient should be subordinated to the principle of preventing liquid retention. If consideration is given to all of these factors, we then have an antiretentional *therapy* instead of a mere antiretentional *diet,* with an organization of every phase of the life of the patient on a single therapeutic principle.

When a brief review is made of the results obtained by the antiretentional therapy in the convulsive states and in migraine, the eclampsias, both of pregnancy and of infancy will be omitted because no such cases came under my observation. Yet mention should be made of the fact that on an empirical basis, a diet to be employed in eclampsia of infancy has been developed by Czerny, the German pediatrician, with remarkable intuition, which diet is identical with the antiretentional diet in almost every detail, and the effectiveness of which has been proven through the years.

In epilepsy and migraine, however, the administration of the antiretentional therapy was put to a test and this was followed by gratifying results. In epilepsy a response was manifested in all cases. It consisted either of the complete disappearance of all attacks or in a decrease in the frequency and severity of the paroxysms, so that sometimes the grand mal attacks did not recur and only the petit mal attacks persisted. The improvement following antiretentional therapy in migraine was shown in the disappearance of all symptoms in a number of cases. In others there was a definite decrease, either in the severity or in the frequency of the attacks, or in both. The improvement followed the antiretentional therapy with such rapidity and regularity that it is comparable with that obtained with specific forms of therapy. Consequently, it will perhaps be possible to use the antiretentional therapy as a so-called

therapeutic test in the differential diagnosis of migraine. In one case which resembled migraine in its manifestations but which did not respond to the therapy, further investigations disclosed that, in fact, the headaches were due to nasal polyps.

Aside from the significance of these therapeutic results in practice, they seem to be noteworthy from the theoretic point of view as well, inasmuch as they might permit a conclusion to be drawn as to the soundness of the basis on which the therapy was built. In other words, the practical results obtained by a therapy designed to rid the body of retained liquids and to prevent their subsequent retention might be considered an evidence of the important rôle played by intracranial liquid accumulation in the pathogenesis of epilepsy and migraine.

Dietetic measures other than antiretentional have been suggested and employed with considerable success in the therapy of convulsive states. I refer particularly to the ketogenic diet offered by Peterman and the dehydration therapy inaugurated by Temple Fay. While observations confirming the results obtained by the antiretentional therapy or its modifications were reported by Grafe, Wagner-Jauregg, Hartenberg and others, it would be premature at this time to discuss its merits as compared to those of the dehydration treatment and the ketogenic diet. I wish to emphasize the fact, however, that (1) the antiretentional diet comes closest to the natural mixed diet of most civilized peoples, (2) that in its development an attempt was made to satisfy all the nutritional needs of the human organism as disclosed by past and contemporary studies, and finally, (3) that an effort was made to harness the forces of all the known dietetic and other factors for the purpose of eliminating intracranial liquid retentions and thus preventing attacks of convulsions and migraine. Should therefore future investigations indicate that the results of this therapy are at least as advantageous as those obtained from the ketogenic diet and dehydration treatment, what I have pointed out would then seem to be in favor of the antiretentional therapy.

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PSYCHIC STRESSES AND CULTURE PATTERNS.

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A thorough understanding of the incidence, etiology, symptomatology and forms of certain classes of mental disorder requires a serious attempt to evaluate the influence of non-organic factors, the relevance of which is thrown into sharp relief once the data of history and ethnology are taken into account, in addition to clinical observations. When a *human* perspective is substituted for the more narrowly circumscribed outlook that implicitly identifies human behavior with the *characteristic* behavior of man in contemporary western civilization, it becomes evident that mental disorders exhibit variations which cannot altogether be attributed to organic factors alone. Fenichel,[1] for instance, refers to " the demands of present day civilization with its contemporary manifestations which we find in the neurotic patients of today who come to seek treatment. So far as we know, other civilizations had produced neuroses, but these differed from the neuroses of today, because these civilizations demanded different instinctual privations. The taboo which we now designate ' compulsion neurosis ' is normal in civilizations other than ours ; a ' devil neurosis of the seventeenth century,' once studied by Freud could not be fitted into our present diagnostic scheme. Indeed we are able to observe how the clinical pictures presented by the neuroses of today are changing, obviously parallel with changes in society and morality. It is the morality which prevails at the time which is directed against instinct in individuals, and morality is a relative power the nature of which depends on the structure of society. It is at this point that the psychologist must admit his inadequacy and agree that the problem of the etiology of neuroses is not a purely individual medical problem and that it needs supplementary sociological considerations."

To the anthropologist, at least, it is a commonplace that, despite the phylogenetic unity of man and the specific identity of contemporary races of our kind, the acquired behavior patterns that

[1] Fenichel, O.: Outline of clinical psychoanalysis, pp. 3-4, 1934.

characterize the human species show an amazing diversity of forms. Transmitted from generation to generation in the form of the folkways, mores, customs, beliefs and techniques of particular groups of mankind, they comprise the cultural as opposed to the organic, heritage of Man. Broadly viewed, the extremely varied character of human culture patterns, when considered in connection with the fundamental organic unity of mankind, presents a phenomenon unique among living things. Man's behavior is everywhere canalized, restricted and defined by customary procedures that are imposed upon each new generation of human individuals in accordance with the demands of different culture patterns. Verbal communication is patterned by conventional linguistic forms. Beliefs, among other things, offer a standardized interpretation of the meaning of physical phenomena of the outer world, often a reification of mythological beings. Interpersonal relations are guided by the traditional forms of the social and economic order. Even perception itself and mental imagery is not free from the influence of culture patterns, nor are motor habits, gestures, the expression of the emotions and the motivations of the individual.

It seems likely then, that as a result of differences in the social pressures imposed by varying cultural configurations, qualitative differences in cultural values bear *some* relation to the incidence and character of psychic stresses in different human societies, quite additional to situational and organic factors. We are not yet in a position to elucidate these relations in any precise detail, but the hypothesis is one that poses an important problem for investigation.

So far as the gross incidence of clinically recognized mental disorders is concerned, it has been casually asserted from time to time, that there is an increase in mental disease as a marked symptom of the stress and strain of modern life in western civilization in contrast to a relatively low incidence of such disorders among so-called primitive peoples. In view of the fact, however, that reliable information is not available on the incidence of mental diseases in primitive societies, such a sweeping statement is unwarranted. White [2] queried it a number of years ago, and on the basis of Mead's observations on functional disorders in Samoa, it has more recently been challenged by Winston.[3] Nevertheless, it may very well be that

[2] White, William A.: Outlines of psychiatry, 10th ed., pp. 45-46, 1924.

[3] Winston, Ella: The alleged lack of mental disease among primitive groups. American Anthropologist, Vol. 36, 1934.

the gross incidence of mental disorders will be found to vary in different culture provinces, if sufficiently reliable information is ever obtained upon which to base comparisons.

The consideration of differences in the forms and symptoms of mental disorders in various societies, in the same society at different periods, and in different contemporary classes of the population of a given society, would seem to offer a more tangible approach to possible relations between these disorders and prevalent culture patterns.

There is one intrinsic difficulty, however, which makes the diagnosis of mental disorder in societies other than our own anything but a simple matter. If " normal " behavior, as defined in our culture, is taken as an absolute standard of reference and the behavior of individuals conditioned to the values of another culture are compared with it, then of course it is even possible to speak of " group psychoses and neuroses " as manifested by the individuals of the exotic society. If, however, we acquaint ourselves with the modal behavior of individuals in a series of totally different cultures and develop norms based on such a standard of reference, we discover that there always are individuals deviant from the norm in every society, and some of these exhibit definite pathological symptoms. This procedure offers a genuine parallel to the study of personality deviation in our own society because it takes account of the cultural forces which mould the normal individual in the society. " Cultural anthropology," as Sapir has said, " has the healthiest of all scepticisms about the validity of the concept ' normal behavior.' It cannot deny the useful tyranny of the normal in a given society but it believes the external form of normal adjustment to be an exceedingly elastic thing. . . . .

" It is valuable because it is constantly rediscovering the normal. For the psychiatrist and for the student of personality in general, this is of the greatest importance, for personalities are not conditioned by a generalized process of adjustment to the ' normal ' but by the necessity of adjusting to the greatest possible variety of idea and action patterns according to the accidents of birth and biography." [4]

[4] Sapir, Edward: Cultural anthropology and psychiatry. Journal of Abnormal and Social Psychology, Vol. XXVII, No. 3, 1932, p. 235. *Cf.* Benedict, Ruth: Anthropology and the abnormal. Journal of General Psychology, Vol. X, 1934.

The reification of dream or vision experiences, for example, is not in accord with the culture patterns of contemporary western civilization. Individuals who interpret dreams in this manner may therefore be characterized as aberrant. But among the Saulteaux Indians with whom I have been in personal contact, as well as among many other native Americans, the deviant individual would be one to whom certain dream experiences were *not* believed to bring one into direct contact with spiritual entities of the cosmos. Without a knowledge of the cultural background of an individual the psychological significance of dream reification in terms of " normality " or " abnormality " has little or no meaning.

Thus, while the beliefs of an individual are always relevant to an understanding of his behavior, the *source* of these beliefs is of great importance. It is chiefly in reference to the beliefs regarding the nature of the external world and the normality of interpersonal relationships that are engendered by certain traditions in our culture that the belief systems of primitive peoples appear to be " flights from reality," comparable with the delusional systems of psychotic individuals in our society. But can the concept of " reality " itself be regarded as having any absolute content? Just as the psychotic person acts *as if* his delusional system constituted reality (as it truly does for him), so the individuals inculcated with the belief systems of primitive societies act *as if* such beliefs were true. But whereas the psychotic reifies a specific personal version of reality, the normal individual of a primitive society reifies the generic beliefs typical of the cultural heritage to which he has been subjected. Thus, while there are many *analogies* between the delusional systems of psychotics and the beliefs of some of the so-called primitive peoples, the *sources* of these beliefs are very decidedly to be distinguished. The reality of the psychotic is a unique, subjective and highly personal configuration, the meaning and psychological significance of which is often unintelligible or even incommunicable to his fellows. The reality, on the other hand, that is *culturally* defined, embodying meanings and values which are shared *in common* by whole series of individuals, has been communicated to the person along with many other ideas and behavior patterns as part of a unified cultural heritage The delusional system of an individual of a primitive society must be evaluated with reference to the definition

of "reality" characteristic of his culture and not that of some other.

Once reality is intellectually accepted as a relative term the meaning and content of which is to be sought in culturally defined terms, considerable insight is obtained into the behavior of individuals acculturated to different reality patterns. The paradox seems to be that the deflation of reality in an absolute sense of the term offers a *genuine* realistic approach to problems of both normal and abnormal behavior. Reality for the Bushmen of South Africa is not the equivalent of reality for the Navajo any more than medieval cosmology and demonology are accredited realities in western civilization today. And the reality of the psychotic of our culture is not the equivalent of any of these.

Science in our culture aims at an interpretation of celestial, meteorological, terrestrial, biotic and psychological phenomena which is more definitive in an absolute sense than anything ever known before in human history. At the same time, the scientific point of view looks with equanimity upon a changing interpretation of phenomena. It is authoritative without being finalistic. Hypotheses are tested and retested and new interpretations emerge. Yet even in western culture, scientifically defined reality has not completely displaced some aspects, at least, of the older and more tenacious traditional versions of reality deeply rooted in the ideology and mores of our society. The recurrent "conflict between religion and science" is symptomatic of this lag. Among individuals of the educated classes, the mental habit of viewing the external objects of what we call the natural world in terms of established scientific knowledge about them, has so completely divorced our minds from other possible attitudes that we are even apt to attribute our point of view to innate intelligence or common sense, instead of to a traditionally acquired mode of thought. Hence the charge of stupidity, childishness or naïveté, sometime flung at primitive man, is a boomerang that may some day be found at our own feet. Whatever the ultimate status of scientifically defined reality may prove to be, the psychological fact remains that just as we act in accordance with this pattern of reality, or its derivatives, so primitive man acts with respect to *his* concepts of reality.[5] If we seek to under-

[5] For which the individuals who entertain these concepts find plentiful support in their actual experience. See Hallowell: Some empirical aspects of Northern Saulteaux religion. American Anthropologist, Vol. 36, 1934.

stand the determinants of human behavior, this must be recognized as one of the psychological imponderables the specific weight of which can hardly be challenged. Moreover, its specific influence in concrete forms of individual behavior can readily be observed, once we establish the proper frame of reference.

When we recognize that the traditional culture patterns of any specific group of human beings provides a frame of reference that not only defines the phenomenal universe but delimits the ambit of interpersonal relations, we see that some psychic stresses which result in "abnormal" behavior of the individual are to be viewed as resultants of inner psychic forces and social pressures productive of aberrant, instead of modal, behavior. The differential factors involved in such cases are, of course, the crux of the matter. Before these factors are to be envisaged, however, one must consider the correlative, if not primary, question as to the relation between specific culture patterns and the *modal* forms of personality structure and character traits which these seem to favor. Certainly, quite aside from mental disorder, character traits inculcated by one culture may seem deviant or abnormal to persons of another culture, a fact usually thrown into relief when even individuals of different cultures are brought into more or less intimate contact.

Ever since the westward movement of Ojibwa speaking peoples into Manitoba in the 18th Century, one of the names by which they have been known is Bungi. Etymologically, this name seems to have been derived from a native term meaning *a little of something*. The Indians were always asking the whites for a little of this and a little of that; pangi tobacco, pangi tea, pangi flour, etc. In short, from the point of view of the white man, they were persistent and annoying beggars. If we were to render the name by which the Indians became known into an English metaphor, beggar would best convey its meaning. To the Whites, the outstanding character trait of the Indian was begging. And I have often heard them reviled for this same characteristic today. In my opinion, the relation of this trait to the cultural background of the Indians is quite clear. It is simply the obverse side of the positive emphasis laid in their native culture upon *giving*. Food, articles of clothing, pipes, and other items circulate freely among those who need them. If children are given food or candy, for instance, they will share it at once with their playmates. Among adults, those who have anything

always share what they have with the "have nots." It is not surprising that the Indians should have carried over their culturally determined habits in their social intercourse with traders, missionaries, and settlers. How could they have done otherwise, particularly in view of the fact that they found themselves in the "have not" class with respect to so many novelties that the white man possessed. So to the white man, with quite different institutional patterns of distributing commodities, and hence a different evaluation of the character trait exhibited by the Saulteaux, they became Bungi—Beggars.

Benedict,[6] considering cultures as integrated wholes, has shown how they operate with gross selectivity in respect to the encouragement of certain human temperaments and psychological trends, and the consequent discouragement of others.[7] All cultures, indeed, because of their very emphasis on characteristic sets of values, must inevitably generate psychic stress in the individuals who from temperament, experience, or by reason of some inner conflict find such values uncongenial. There are societies in which homosexuality has been culturally integrated, others in which it is tolerated, and others in which it is suppressed with vigor. We know cultures in which dissociative psychic states or hysteria have been one qualification for religious leadership [8] or even sainthood; and with the latter, we might contrast societies where there are no culturally approved channels for the expression of such psychic phenomena outside of a mental hospital.

Knowing so little about the genetic processes of cultural conditioning and personal symbolisms, to say nothing of the conflicting inner forces that the psychoanalysts emphasize, we encounter enormous difficulties in elucidating the relationship of psychic stresses to culture patterns in complex and stratified societies where the relationship of individuals to a variety of cultural patterns is so

[6] Benedict, Ruth: Patterns of culture, 1934.

[7] In "The problem of feminine masochism," Psychoanalytic Review, Vol. 22, 1935, Karen Horney discusses the relative weight of anatomico-physiological components as contrasted with cultural factors and concludes that feminine masochism cannot be related to the former alone "but must be considered as importantly conditioned by the culture-complex or social organization in which the particular masochistic woman has developed."

[8] *Cf.* Seligman, Brenda Z.: The part of the unconscious in social heritage. (Essays presented to C. G. Seligman, 1934.)

intricate. I should like to make the point, however, that *pari passu* with the investigation either of generic culture configurations which in one society may permit, or even exploit, what in another may be regarded as pathological manifestations, or of the relation of cultural configurations to the problem of mental disorder in any society, there must also be considered the rôle which specific culture patterns may play in bringing about psychic stresses of a much less spectacular sort.

It seems to me that the elucidation of these less serious forms of psychic stress, especially in the simpler and culturally homogeneous societies, should be of some value in throwing light on the fundamental mechanisms involved in both the genesis and resolution of such states of mind under varying conditions, as well as offering the possibility of testing some of the psychological concepts and interpretations advanced to explain the behavior of individuals habituated to the culture patterns of western civilization.[9]

I shall attempt to demonstrate this by the analysis of some case material that shows how some characteristic culture patterns of the Berens River Saulteaux [10] seem to have functioned in relation to the psychic stresses of certain individuals. For the most part, only minor tensions are involved, although a few of these cases might possibly be considered to verge on clinically recognizable disorders. It would seem that the creation, as well as the resolution, of the psychic stress in these cases is connected with specific culture patterns. It would certainly be difficult to comprehend them except in terms of the particular values and attitudes characteristic of Saulteaux culture. On the other hand, the psychological interpretation in each case is sheer guesswork on my part, for which I crave as much indulgence as seems permissible. I did not make a detailed study of any of these individuals; in fact for the most part, I have depended on hearsay evidence. One of the individuals is dead; another, I never met. The case material suffers accordingly; it

[9] *Cf.* Herkovits, M. J.: Freudian mechanisms in primitive negro psychology. (Essays presented to C. G. Seligman, 1934.)

[10] These Indians represent a typical segment of the contemporary native population of the woodland region of the Province of Manitoba, Canada. The river on which they live flows into Lake Winnipeg at approximately 52° N. Lat. They speak an Ojibwa dialect, and a portion of those living up the river are still un-christianized.

can hardly be considered a contribution towards the solution of the problem I have stated, but it does illustrate one angle of attack which a more systematic, detailed investigation might take. Its value can best be judged if this fact is borne in mind.

I. Institutionalized Confession as a Means of Relieving Psychic Stress.[11]

Back of confession itself lies one facet of the Saulteaux theory of disease. The relief from psychic tension that the confession affords is actually a by-product of the conscious desire on the part of some individual to cure himself or a member of his family of an illness. This follows from the belief held that disease may be the result of some moral transgression such as murder, incest, or deception.

This last mentioned transgression specifically means the offering of professional services under false pretences, that is, without supernatural validation. Specialists in certain methods of curing disease, and in clairvoyance and sorcery, for instance, are only able to pursue these vocations because they have been blessed by certain supernatural entities. Their letters patent were obtained in a dream revelation. To practice any special vocation, such as sucking out disease entities or conjuring *without* supernatural sanction, mediated through dreams, is a form of criminal deception. Sickness is sure to follow. Apparently nervous diseases, no less recalcitrant to Saulteaux pharmacology than to western medicine, are frequently accounted for in this way. One old man, who had a stroke during the summer of 1934, was no sooner stricken than the river began to buzz with gossip to effect that his illness was due to deception. But retribution, in the form of sickness, may fall not only on oneself; the sins of the fathers are sometimes visited upon the children—to how many generations, I do not know. There is even a native term for sickness attributable to the wrongdoing of parents. Confession of the crime is the only possible method of cure in such cases.

Case 1.—*Confession of Deception in the Case of a Man Who Suffered from a Phobia.*—This Indian was a conjurer. Power to exercise this particular

[11] Confession in varying culture contexts is very widespread among the so-called primitive peoples, especially in America and Africa. See the survey by R. Pettazzoni, La Confession des Péchés, Paris, 1931.

vocation requires not a single dream revelation but four of them. In this way conjuring is supernaturally inspired. The details of the conjuring lodge itself, such as the particular kind of trees to be used, and other matters, are all conveyed to the human individual in these dreams. When the lodge is entered by the conjurer it begins at once to tremble and later sways from side to side while the voices of the conjurer's guardian spirits issue from it. These spirits do not enter his body and speak *through* him, but sit on the lodge poles and speak *to* him.[12] They give information about lost articles, the welfare of people at a distance, and so on. It is equivalent to a mediumistic performance in our culture. To those of us not spiritualistically inclined by faith, it can be assumed that the voices are not actually those of spiritual beings and that the conjurer himself makes the structure move, but even at this late date, the actual technique of the manipulation of the tent is in doubt. The contemporary Saulteaux, moreover, while maintaining, one and all, a vital belief in the essentially supernatural character of conjuring, admit cases of imposture. It was in this connection that I was told about the case of William Goosehead. A few years ago he could not go into the woods alone, not even for 200 yards. One can readily comprehend how abnormal this is for a man brought up in the Canadian wilderness. Finally, Goosehead confessed that he had been shaking the conjuring tent illegitimately. He had been deceiving his public. A short time after this he is said to have completely recovered from his phobia. I do not know whether there was any real connection between his confession and his recovery, but it is apparent on the face of things, that he must have labored under a considerable sense of guilt, else he would not have confessed. From the native viewpoint, confession was a possible remedy and it appears to have worked.

But if tent shaking is all hocus pocus, why should this man have felt any sense of guilt about doing what other conjurers did? I was told, for instance, that he admitted shaking the lodge with his own hands. Still, I do not believe that this is the core of the matter. I would assume that, in this culture, dream validation of conjuring is not merely a theory, it actually involves real dream experiences of the required pattern, interpreted as divine revelation. The mechanical means employed to shake the tent may then be looked upon as a sort of necessary materialistic evil. Since everyone accepts the supernatural origin of significant dreams, the sincere conjurer is supported by this common tenet of belief, as well as by his private experience. Within such a cultural context, surely this must be convincing enough to make most individuals feel that their efforts are supernaturally inspired. The native charlatan then is a man who has *not* experienced the stereotyped dreams

[12] Possession, *i. e.*, the belief that a spirit (evil or otherwise) may enter the body of a human being and control his behavior, is as foreign to the ideology of most New World cultures as it is conspicuous in those of the Old World. *Cf.* Franz Boas, America and the Old World, p. 27 (Proceedings, International Congress of Americanists, Göteborg, 1925); T. K. Oesterreich, Possession, Demoniacal and other, N. Y., 1930, pp. 292-3.

demanded by the culture pattern yet, motivated by a desire for prestige or the material compensation involved, undertakes to conjure. I would guess that W. Goosehead was one such man. It is even conceivable that his specific fears *were* actually connected with some personal version of supernatural retribution that made him dread going into the woods alone on account of some danger from this particular source.

Case 2.—*Confession of Some Secret Sin as a Means of Helping to Cure One's Offspring From an Illness.*—Sickness due to this cause, as I have said, is designated by a special term. Although I was not able to secure the details of it, one case of this sort did arise in the summer of 1934. In this instance, as in others of its kind, the diagnosis of the illness as due to some moral transgression on the part of a parent, was obtained by conjuring. The father of the youth who was taken ill was supposed to have confessed to the conjurer. What his crime had been, I was unable to find out. His son suffered from spells of unconsciousness and whether the boy finally recovered I do not know. But since every one can find some hidden deed that troubles him, the illness of the child furnishes, in Saulteaux culture, the occasion, and the confession the means, for the release of a psychic tension and for the cure of an illness at the same time. Of course the transgression must be a serious one and likewise conform to the panel of Saulteaux crimes.

II. An Appeal to Love Magic to Relieve Shame, Embarrassment, and Perhaps Unconscious Guilt, as Well as to Combat a Social Attitude of Ridicule.

Case 3.—A young man was discovered sleeping with an old woman. Everyone teased him about it and made him very much ashamed. No one in his proper senses, according to my informant, would ever have thought of sleeping with the old woman in question. Besides, the young man was in no way cut off from younger women. Consequently, the fact seems established that the old woman was the young man's choice, or, in psychological terms, a genuine compulsion. This was likewise the level on which the young man explained his conduct. He said that he had once insulted the old woman and that, in revenge, she had lured him to her by love medicine. He remembered nothing from leaving his tent until he found himself at the old woman's side at day-break. My informant was convinced by this explanation and offered the anecdote as convincing proof of the effectiveness of love magic. The other Indians were probably as well satisfied with the boy's personal defense; the terms of rationalization chosen by him were effective. Since the belief in love magic is strongly entrenched, even among the contemporary Saulteaux, his psychic stress could be most satisfactorily resolved by this particular explanation. In terms of native belief he became volitionally absolved in the opinion of others and possibly to himself, because it is quite possible that the old woman was actually a mother surrogate. Assuming this to have been the case, and that he actually had insulted her, the act might have been an

overt defense reaction to only partially repressed inclinations towards the intimate relations which finally took place. The sexual act itself would then be a symbol of incest, the compulsion towards which he was no longer able to suppress. In these premises, his claim that the old woman had employed love magic was doubly appropriate; it not only protected him from the ridicule of his fellows, but also protected his own ego from knowledge of his unconscious desires.

III. The Rôle of Dreams in the Resolution of Psychic Stress.

A. Dreams of having one's soul kidnapped and escaping from a conjuring lodge, as symbols of self-punishment and release from some specific guilt and fear.

According to native theory, a conjurer with malevolent intent may abduct the soul of a sleeping victim. To be able to accomplish this, he must have a conjuring lodge set up somewhere, enter it, and summon his spiritual helpers to his aid. With their assistance, the soul of the sleeping individual is brought into the conjuring lodge. It may be killed there, and if this happens, the person from whom it was abducted will be found dead the next morning. On the other hand, the soul may sometimes find a way to escape from the conjuring lodge and return to the body of the sleeper. In this case the victim may suffer illness, but not death. The conjurer has missed his chance.

The testimony of individuals who have interpreted dreams of soul abduction as real experiences is accepted by the Indians as proof of the powers of the conjurers. In each of the two following cases, I wish to emphasize the connection of the dream with a previous experience of the individual which engendered a feeling of guilt and, in the first case, actual fear that a particular conjurer would take some malevolent action.

Case 4.—"I was just about 16 years old when someone tried to kill me. This is what happened. We boys were playing ball one day and I got one of them mad. I guess it was my fault. He was a 'humpy' and his father was a conjurer. The 'humpy' looked so funny when he ran that I ran the same way to tease him. All the boys laughed but he got mad and said to me, 'You'll remember this.' This happened in the summer and I soon forgot all about it. I was too young to understand what he meant. The next winter, in March (Eagle Moon), we were camped about four miles up the river and all ready to pull out the next day. Everybody was well. That night after I had gone to sleep I saw someone coming from the north directly

towards the camp. It was a young man. He came and stood at my feet as I lay sleeping. He spoke to me: 'You are wanted over there,' motioning with his lips towards the north. I got up and started off with him. I found that we were traveling through the air, not along the ground. I looked up and saw a river ahead of us and just one bark covered tipi. I could see the kind of trees growing there. There were lots of very straight Jack pine on the north side of the river. Now we came down to the ground near another kind of 'tent.' I walked into it. There was humpy's father in the center. I could see no end to the tent, it stretched out as far as I could see and it was full of all kinds of people. I knew then that I was inside a conjuring lodge. 'I'm going out,' I said. But the old man said, 'No. You can't go.' Then I saw my own head rolling about and the 'people' in the lodge were trying to catch it. I thought to myself that if only I could catch my own head everything would be all right. So I tried to grab it when it rolled near me and finally I caught it. As soon as I got hold of it I could see my way out and I left. Then I woke up and I could not move my legs or my arms. Only my fingers, I could move. But finally I managed to speak. I called out to my mother to make a light. I told her I was sick. I could not manage to move my head. When morning came I was still sick. I told my father about what had happened. He knew at once that someone had done something to me and that I had really been in a conjuring lodge. All that day and the next I lay sick. Then I got better. It was my soul that the conjurer had drawn away while I was asleep. If it had not found its way back to my body, I would have been found dead in the morning."

That both guilt and fear were involved in this case, is, I think, plain; guilt, because the boy's deliberate mimicry was evidently in disharmony with the demands of his conscience, and fear, because of the implied threat of subsequent harm, coupled with the fact that the hunchback's father was a conjurer. The induction of fear arose from the native belief in the malevolent powers of conjurers, typical of this culture. A similar interpersonal situation, involving individuals of a different cultural context, would not have caused the same emotional precipitate. The striking fact is that the cultural pattern of the society in which this situation seems to have created inner tensions in an individual, also provided a means for their resolution. In gross psychological terms, the manifest content of the dream not only met the cultural requirements in regard to a type of vengeance that the conjurer might be expected to take, but also it functioned unconsciously as a means of self-punishment, in this latter respect doubtless meeting what were inner psychic demands. By so doing, it resolved the psychic tensions which had arisen. It may also be surmised in this case that the physical symptoms were also involved. I do not mean that they necessarily were psychogenic; they may have been seized upon, let us say, by the super-ego and exploited concomitantly with the dream, as a convenient means at hand for ego punishment. Since in the account as given, the individual was quite certain that he had successfully escaped the conjurer's clutches, it would seem that an equilibrium was achieved and that his ego had sloughed off both guilt and fear as a result of the dream experience and subsequent illness.

Case 5.—I was told of another Indian who had a similar dream experience, but I was unable to secure his own account of it. Here again it is significant that several months prior to this particular dream, he had committed an act of defilement which, if I understand the attitude of these Indians aright, might well have continued to trouble his conscience.

This youth was out hunting with some other young fellows. They came upon some traps belonging to the Indians of an adjoining band. The youth had to defecate. His companions dared him, as we would say, to defecate on one of the traps. He did so and sprung the trap so that a piece of the excrement was left sticking out. Now this sort of defilement was not only an insult to the owner of the trap, it was also a deterrent to any animal that might prowl that way, and worse still, it was an affront to the "spiritual" owner of any animal species. This latter was the worst offense of all. No wonder then, that this youth needed absolution. There came a dream in which his soul was abducted, but managed to escape from a conjuring lodge. I find one detail in my notes which seems to clinch the connection: The young man dreamed that his soul was taken into the lodge of a conjurer of the same band as that of the man whose trap he had defiled.

B. A dream of self-reassurance that a son would recover from an illness that also was a token of semi-emancipation from pagan beliefs.

Case 6.—W. B., who is the Chief of the Berens River Band today, was about 10 years old when the first Christian missionary came to live on the Berens River. His father, chief before him, was the first Christian convert on the river and was married to a white woman. The paternal grandfather of W. B., however, was a thorough-going pagan, who lived to be a very old man and seems to have been greatly admired by his grandson. W. B. spent a good deal of time with him and thus was subjected to typical aboriginal beliefs along with the Christian aspirations of his parents. An old man today, W. B. is consequently the product of mixed Saulteaux and Christian traditions.

In order to understand the possible significance of one of the dreams of W. B., one needs information on the native beliefs in regard to *micipijiu* (the Great Lynx),[13] a semimythical animal, and on the attitude of the Saulteaux towards dream visitations of this creature. It must be understood, of course, that the Great Lynx is held to have a real existence. But unlike almost all other spiritual entities that appear to man in dreams, this *pawagan*[14] brings misfortune. The Great Lynx will appear to a boy as an attractive woman inviting seduction, and to a girl in a male guise. To become involved in such a relationship provokes the unremitting jealousy of this being. If the individual who experiences such dreams later marries, his or her spouse will die

[13] Conceptually modeled upon the cougar or mountain lion (Felis Couguar) which was once found practically all over North America as far north as the Great Lakes.

[14] *I. e.*, dream visitor.

or the children of the marriage will sicken and die. Consequently, it is the native dogma that individuals who have dreamed of the Great Lynx should avoid marriage. If such a person should want to risk it, their prospective spouse, if an inkling of such a dream leaks out, will not go through with it. How potent the belief has been in actually deterring the marriages of thorough-going pagans, I do not know. But there are extremely few unmarried individuals among the Saulteaux. Nevertheless, it may be assumed that the belief is likely to be a source of latent fear in such individuals as do run the risk of marriage subsequent to dreams of the Great Lynx. That this was actually so in the case of W. B., despite the fact that he was a Christian, is proved by a significant coincidence.

W. B. had several such dreams, but he was not inhibited from marrying. A few years after his marriage, one of his sons became critically ill. While the boy was sick, W. B. again had a dream visitation from the Great Lynx. He was thoroughly alarmed, thought his son was going to die, and consulted a conjurer about the matter. (I failed to ask him whether he prayed about it, too.) The conjurer promised to help overcome the Great Lynx. The next night W. B. received another visit from this *pawagan*. On this occasion they had a terrific fight. W. B. was completely victorious. He escaped without a scratch. This, he said, was because his own guardian spirits came to his aid as well as those of the conjurer. When the latter learned of the outcome, he assured W. B. that everything would be all right. And the sick boy did recover.

This dream exposes another facet of the linkage of theories of disease and its cure in Saulteaux culture patterns. The dream victory of W. B. over the Great Lynx relieved the immediate stress caused by his concern over the son's illness. But I think that it may also have symbolized the inner conflicts of W. B. with respect to the mixed authority of pagan and Christian beliefs which he held simultaneously. Today at least, while outwardly adhering to the Christian faith, W. B. is profoundly convinced of the truth of many pagan beliefs. Yet, he has had more contact with the whites than any man on the river. His conscious aspirations are focused in many respects towards the culture patterns of the white man, but at the level of belief, he is much less emancipated from aboriginal patterns than are his wife and children. While his dream is of a culturally stereotyped pattern relevant to the son's illness, it may likewise have symbolized, in a more personal unconscious sense, the desire of W. B. to be still further freed from the influence of native beliefs. Since he was victorious over the Great Lynx and his son recovered, the dream may have given him unconscious assurance that he had at least freed himself from one native belief with impunity.

C. Supernatural dream revelation as a means of validating the gratification of an incestuous desire, tabooed by custom and under a disease sanction.

Case 7.—All the incest taboos among the Saulteaux are upheld by a disease sanction. Marriages of certain classes of near kin are believed to be fol-

lowed by the sickness and death of offspring. Specific cases are cited to prove the inevitability of these consequences. The genealogical data show that incest taboos are actually in operation. Sib exogamy is sometimes broken. but usually such sib mates are not blood kin, since distinct family lines may have the same totemic name. Marriage of any close blood relative, on the other hand, except a cross-cousin, is extremely rare, although I have recorded a few cases. No case of father-daughter or mother-son marriage has ever been heard of, and the case of full brother-sister marriage I wish to discuss is unique, an outstanding psychological achievement for the man who undertook it. It involves the overcoming of a severe brother-sister taboo which embraces parallel cousins and other individuals to whom the sibling terms are applied in daily life. The taboos between siblings of opposite sex not only forbid sex relations but also restrict their social intercourse. From a psychological point of view, it might well be expected, in view of these systematic repressions, that deviant individuals might appear from time to time to challenge their authority. At any rate it may safely be assumed that there was considerable psychic stress engendered in this individual who did so. Such a man was Sagaski. It is significant that he was no common mortal but a man reputed to possess unusually strong magical powers, and to have many supernatural helpers at his command. On this account, he was in the best strategic position possible to do as he pleased. This is probably an objective judgment rather than one which assumes the point of view of the Saulteaux themselves. For Sagaski did not do simply as he pleased. He did not live with his sister until he let it be known that one of his guardian spirits—the spiritual "owner" of the beaver—*commanded* him to take his sister as a wife, in short, to follow the beaver mating pattern instead of the human. Now since dreams are believed to be the medium of communication among the Saulteaux between man and the supernatural world, Sagaski did nothing less than invoke the highest authority possible for his marriage—a supernatural one. Furthermore, it is believed to be a sin *not* to follow the instruction received in dream revelations. In terms of Saulteaux theory, then, Sagaski had a perfect case. And I have no doubt, moreover, that he actually dreamed the dream he reported. Considering the psychological function of a dream theory such as that to which the Saulteaux adhere, it seems to me that their dreams should serve them in this way. At any rate, it is easy to understand how Sagaski's marriage to his sister was validated in the most effective terms which the culture itself, although tabooing incest, could offer. But there is another chapter to the story.

Evidently the guilt feelings experienced by Sagaski were not quelled even by the supernatural sanction he invoked. Perhaps his culture was too elastic, and perhaps there were deeper psychic involvements which only some means of ego punishment, not supplied by the prevalent culture patterns, could balance. At any rate, many years later, after he had had three children, he tried to induce one of them, a son, to marry his sister. But the boy refused. It would seem that this behavior of Sagaski may have represented the still latent need to justify his own previous conduct. It may even have been in

response to a need to circumvent incestuous desires for his own daughter. This latter possibility receives some measure of support from a few details about the family. Sagaski's sister-wife died and only one of the children of this incestuous marriage now survives. This daughter never married and neither did two daughters by a second marriage. This is most unusual among the Saulteaux. Moreover, Sagaski trained his daughters to do many of the tasks men usually perform and guarded them much more closely than Saulteaux fathers ordinarily do. In summer, he used to camp with his family on an island and would never let the young men passing up and down the river put up their tents there even for a single night.

It would also be interesting to know how individuals in other societies, with different culture patterns, have managed to win sufficient social approval to enable them to break such a universal incest prohibition. In a recent article, C. M. Garber [15] refers to genealogical data he had collected on an Eskimo family on the Kuskokwim River. He stresses the inbreeding that he found. This includes cousin marriages and he adds, "it is not extremely rare that brother married sister." He also recorded four cases in which a father married his daughter. One cannot but wonder what was the attitude towards these marriages. Were they casually undertaken and socially accepted like other marriages? Were the individuals concerned subject to no resulting psychic stress, or were they, like Sagaski, forced to resort to some established cultural means in order to justify and support their conduct?

In human history, supernatural sanctions of various kinds seem to have been an almost constant factor in the support of established cultural institutions. It is less frequently emphasized that they have been likewise the court of appeal for the deviant behavior of the individual. The double rôle which this sort of authority has played is of very considerable psychological importance. Hallucinations, delusions, visions and dreams, as culturally interpreted, have provided the individual with possible ways of adjustment to psychic stresses and to accepted social values. These individual adjustments must of necessity depend upon specific culture patterns. Without the values and the attitudes integrated with them and shared by one's fellows, one becomes isolated in a subjective world. If one cannot communicate with others through the medium of common cultural values, it is not possible to make one's deviant behavior

[15] Marriage and Sex Customs of the Western Eskimo. Scientific Monthly, vol. 41, September 1935.

plausible to one's fellows. It is quite possible that the decline of supernaturalism in western civilization has forever undermined the status of a generic culture pattern which, in a multitude of forms, has been an effective, although to us naïve authority, previously available to the individual as a means of resolving various forms of psychic stress. At the same time, certainly, one must not forget the potent rôle that supernaturalism has played in causing psychic stress.

IV. Intra-Psychic Conflict in the Guise of Transformation into a Windigo (Cannibal).

Finally, I should like to draw attention to a brief account by David Thompson of one of those numerous cases of *cannibalistic desires (the so-called "windigo psychoses")*, which occur so typically among Cree and Ojibwa Indians. Whether all such cases can be regarded as some form of mental disorder with a culturally patterned symptomatology, is a question which Cooper and I have discussed elsewhere.[16] Let me quote the case reported by Thompson [17] as an instance in which cannibalistic desires on the part of a young man may possibly have been the culturally determined disguise of unconsciously activated incestuous desires. The youth concerned expressed a desire to eat his sister.

The episode took place in an Ojibwa summer encampment on the Lake of the Woods in 1798. Thompson says:

> One morning a young man of about 20 years of age on getting up, said he felt a strong inclination to eat his sister; as he was a steady young man, and a promising hunter, no notice was taken of this expression; the next morning he said the same and repeated the same several times in the day for a few days. His parents attempted to reason him out of this horrid inclination; he was silent and gave them no answer; his sister and her husband became alarmed, left the place and went to another camp. He became aware of it, and then said he must have human flesh to eat, and would have it; in other respects, his behavior was cool, calm and quiet. His father and relations were much grieved; argument had no effect on him, and he made them no

[16] Hallowell, Culture and Mental Disorder. Journal of Abnormal and Social Psychology, vol. XXIX, no. 1, 1934, pp. 1-9, *op. cit.* and J. M. Cooper. Mental Disease Situations in Certain Cultures. *Ibid. Cf.* also Cooper, The Cree Witiko Psychosis. Primitive Man, Vol. VI, 1933.

[17] J. B. Tyrrell. (ed.) David Thompson's Narrative of his Explorations in Western America (1784-1812), Champlain Society, 1916, p. 259 *seq.*

answer to their questions. The camp became alarmed, for it was doubtful who would be his victim. His father called the men to a council, where the state of the young man was discussed, and their decision was, that an evil spirit had entered into him, and was in full possession of him to make him become a Man Eater (a Weetego). The father was found fault with for not having called to his assistance a Medicine Man, who by sweating and his songs to the tambour and rattle might have driven away the evil spirit, before it was too late. Sentence of death was passed on him, which was to be done by his father. The young man was called . . . . [and] . . . . informed of the resolution taken, to which he said, "I am willing to die"; the unhappy father arose, and placing a cord about his neck strangled him, to which he was quite passive; after about two hours, the body was carried to a large fire, and burned to ashes, not the least bit of bone remaining. This was carefully done to prevent his soul and evil spirit which possessed him from returning to this world and appearing at his grave; as they believe the souls of those who are buried can, and may do, as having a claim to the bones of their bodies. It may be thought that the council acted a cruel part in ordering the father to put his son to death, when they could have ordered it by the hands of another person. This was done, to prevent the law of retaliation; which had it been done by the hands of another person, might have been made a pretext of revenge by those who were not the friends of the person who put him to death. Such is the state of society where there are no positive laws to direct mankind.

The other reported cases of the *windigo* psychoses that have come to my attention are not detailed as to the person or persons towards whom the cannibalistic desires were directed. In those of which I had an opportunity to inquire, I have not succeeded in securing this particular information. The conviction has grown in me, however, that we have a particularly significant field for exploration here. Psychiatrists have reported data suggestive of a relation of the act of eating and the sex act, and have inferred a generalized symbolic relationship. Be this inference warranted or otherwise, it certainly offers an intelligible hypothesis in the case reported by Thompson, which in turn is an illustration how an unconscious symbol may become reified in the terms of a specific culture pattern. I have elsewhere [18] questioned whether the "*windigo* psychosis" is to be regarded as a unitary type of mental disorder, and have suggested that further investigation will probably reveal that the cannibalistic pattern functions as a cloak for a variety of mental processes. They would seem, however, in every case to be particularly well worth

[18] Culture and Mental Disorder, *op. cit.*

detailed study to elucidate the relation between psychic stresses and culture patterns in the individual.

In conclusion, let me make due apology for the fragmentary nature of my facts, and the extended inferences that I have drawn from them. The purpose of this paper is not the solving of problems, but the pointing out of the relevance of anthropological field data to investigations in the relations of culture and personality. It seems that the anthropologist, if he were aided in formulating his problems by the psychiatrist sensitive to the implications of culture, might well collect data on the behavior of individuals in societies with culture patterns different from our own that would be of real significance to psychiatry. The relation of psychic stresses to the patterns of our own culture may perhaps best be attacked by way of the pseudo-experimental setups that are available for study elsewhere in the world.

OVERLAPPING SYMPTOMS IN CATATONIC EXCITEMENT AND MANIC EXCITEMENT.

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I. Introductory.

This study is a sequel to a paper entitled "Psychogenic Factors as Causative Agents in Manic-Depressive Psychoses." *

In the discussion of this paper it was stated that we intended using it as the basis for a long-continued study. As might have been foreseen, the research has taken a course deviating considerably from what we had then in mind, but it is nevertheless closely related to the study of 1928-30.

The material for the earlier research was obtained by making intensive individual observations and social service study of 100 patients diagnosed as cases of manic-depressive psychosis. In order to avoid arbitrary selection of cases, we planned to base the study upon consecutive admissions to the hospital, using all cases so diagnosed within a specified two-year period, and only those. In this project we had the cooperation of the staff physicians, who endeavored both to give us full information concerning all patients included in the group and also to prevent any doubtful cases from being erroneously included. However, we discovered in the early stages that we could not invariably accept at face value the diagnosis agreed upon by the staff. Patients for whom this was the first attack had been under observation only one month at the time when the diagnosis was passed upon, and our subsequent observations frequently led us to question it. Among the patients who had suffered several attacks, we found some who had been previously diagnosed as cases of dementia præcox. Thus we found it necessary to review the diagnoses for all cases except those which had

* Read at the meeting of the Association for Research in Nervous and Mental Disease, New York, December 29, 1930. Published in Manic-Depressive Psychoses, Proceedings of the Association, Williams and Wilkins, Baltimore, 1931.

been repeatedly diagnosed manic-depressive psychosis. By the time we had collected 100 cases which we felt safe in using, we had weeded out 47 cases which seemed too doubtful to be included, thus sacrificing 31 per cent of the data accumulated. (One of the rejected cases appeared after recovery and readmission to have been after all an acceptable case; and several cases which we accepted have since been readmitted under a diagnosis other than manic-depressive psychosis.)

As our attention became increasingly centered upon the difficulty and uncertainty of almost any diagnosis based wholly or primarily upon mental symptoms, we had occasion to notice in particular the strong similarity between manic excitement and catatonic excitement. We found no such clear dividing line as might be inferred from a study of standard textbooks. It appeared rather that a person whose inhibitions are released by reason of mental illness is likely to present certain characteristic behavior patterns, the exact manifestations depending more upon the degree of excitement than upon the nature of the psychosis.

Thus our observations led us, early in 1931, to a study of the symptoms found in excited patients who were diagnosed either dementia præcox or manic-depressive psychosis.

II. Method of Study.

Certain specified symptoms, to be noted for each case, were grouped on a page which was printed by mineograph. A full sheet was used for each patient, and we checked off on this printed page any symptoms reported in the case record as being present.*

Our personal observations have been included also when possible, but the greater part of the material has been taken from the hospital records. Without discounting the importance of making personal observations, we have by no means wished to draw the data primarily from so limited a source. To observe and name the mental symptoms of a disturbed patient from whom no cooperation can be expected must of necessity involve considerable play of

* In this work of reading through the records and checking any symptoms found there, we have been assisted by various members of the department of psychology. Our grateful acknowledgments are due especially to Arthur Ruggles, Jr., Alice Schoenfuss, Lucy Sanborn and Dorothy McLeod.

personal bias on the part of the observer. In order to reduce this factor to the minimum, we have considered it desirable to have the data drawn from as many observers as possible. To this end we have searched the records for mention of the specified symptoms, and have included any symptom reported at any time by any physician. In addition to the Danvers records of the past 20 years, we have used a large number of records from the Boston Psychopathic Hospital and a few from various other hospitals in which a patient has been observed at some previous time. Also we have included a few cases not observed by us at all—exceptionally clear manic-depressive cases taken from the files of Butler Hospital and Worcester State Hospital. The exact number of observers from whom we are quoting is not known, but it is a fairly safe estimate that some 50 persons have made a considerable contribution to our data and that 50 others are represented each by a few items.

III. Outline of Symptoms.

We started with a list of 76 symptoms or descriptive terms, some significant as manifestations of excitement and others included for their diagnostic import. This list has since been reduced to 40 items, as follows:

Physical Symptoms.

Marked cyanosis.
Cerea flexibilitas.
Tube feeding required.

Mental Symptoms.

Memory defect.
Confusion.
Attention defect.
Distractibility.
Hallucinations.
Paranoid ideas.
Other delusions.
Ideas of reference.

Emotional State.

Silly, shallow reaction.
Indifference, apathy.
Exhilaration.
Irritability.
Depression.
Instability.

Verbal Production.

Over-talkative.
Flight of ideas.
Play of speech.
Facetiousness.
Stereotyped speech.
Verbigeration.
Irrelevance.
Incoherence.
Retardation.
Blocking.
Mutism.

Behavior.

Seclusive.
Sociable.
Resistive.
Over-active.
Playful.
Untidy in habit.
Denudative.
Destructive.
Negativistic.
Impulsive.
Mannerisms.
Attitudes.

Some of the original items have been deleted as being unimportant, and others have been sacrificed because we found it impossible to obtain trustworthy information about them. Insight, for example, is a symptom which may develop almost overnight in a patient who has just been reported as having no insight. It appears that insight is characteristically lacking during the period of strong excitement, but we have found comparatively few patients of either diagnosis concerning whom it is reported to have been totally absent during the whole psychotic period. Insight is a significant symptom, but it does not lend itself readily to a cross-section study. Deterioration is another symptom which we have not been able to include, because there are so many cases in which it may or may not be present.

It is by intention that we have omitted certain non-specific symptoms which are so nearly universal in a state of excitement as to be taken for granted. We expect an uninhibited patient to be noisy and profane; violent and assaultive. Such symptoms have so little diagnostic importance that it has not seemed worth while to include them in our outline, although we have found them very frequently mentioned in the case notes.

Other symptoms, significant in themselves, have been omitted because we have found so little mention of them. It means something when it can be reported that a patient is alert and observant, but this item is rarely found in our case notes. It would be misleading to assume that a symptom is not present unless we find it on record.

There is a tendency for observers to use stereotyped phrases when dictating psychiatric notes, and we have to take the records as we find them. As this is a statistical study of symptoms previously recorded, we have used the descriptive terms found in the records rather than those of our own choice.

IV. Selection of Cases.

Having already found it impossible to use unselected cases of manic-depressive psychosis exactly as diagnosed on admission, we did not attempt this time to make the selection of cases wholly fortuitous. In the early stages we listed every potentially usable case that came to our notice, not expecting to use the list in full.

When the study was well advanced we formulated the following criteria for selection:

1. *Excitement.*—Each patient included must have had a period of marked excitement during his residence in some mental hospital, and there must be adequate record of his behavior while in an excited state. Some patients have been transferred to this hospital in a state of depression or stupor, and we may have had no opportunity to observe the excitement; but such a case may yet be included, if we have a detailed psychiatric report of excitement as observed in another hospital.

2. *Diagnosis.*—In each case the diagnosis must be either dementia præcox or manic-depressive psychosis, as opposed to some organic or traumatic condition. This does not necessarily exclude a post partum case or other case in which the etiology of the attack is referred to a somatic condition, but does exclude a case which has at any time been definitely diagnosed with reference to a somatic condition. A previous diagnosis of "psychoneurosis" or "undiagnosed," however, is not considered sufficient ground for rejecting an otherwise acceptable case.

3. *Symptoms.*—No particular symptom observed or recorded is to have any weight in determining our acceptance of the diagnosis which has been placed officially on record, except for excluding doubtful cases. These symptoms which we are observing must necessarily have influenced the opinions of those who passed upon a case for diagnosis, but their bearing upon the diagnosis is a closed issue. To make further use of the same symptoms in selecting our cases would involve reasoning in a circle.

4. *Exclusions.*—Foreign-born patients have been included only when having sufficient command of English to permit their verbal production to be observed. Many cases on the preliminary list have been ultimately rejected on the ground that the record of specific symptoms was too scanty, possibly because the patient's residence in the hospital was too short to permit adequate observation. A few have been excluded on the ground that the excitement was of so extreme a degree as to make proper study impossible. For a patient who has been observed only in a state of wild excitement, the diagnosis is too uncertain to be considered valid. Although excitement is what we are observing, it is essential to have some knowledge of the patient in a relatively normal state.

The ideal case for this study is a patient who has had at least three different attacks covering a period of several years, who has been studied in more than one hospital, admitted always under the same diagnosis, with practical unanimity of vote for the diagnosis and with abundant expression of opinion at each presentation concerning the basis for the diagnosis. It would be desirable further to include our personal observations in checking the symptoms reported, while scrupulously eliminating our own opinion as to diagnosis.

In point of fact, cases diagnosed unanimously the same for three attacks are so rare that it might well take a lifetime to collect any considerable number of them. We are using material which falls short of this ideal, including some cases in which the vote on diagnosis was not quite unanimous and also some extremely clear cases in which there is only one attack on record. And yet it can be claimed that our selection of cases has been influenced by these ideal criteria which we can only approach, not attain.

The 1930 study, which included more cases of depression than of manic excitement, yielded only 22 cases which conform to our criteria for selection. Inasmuch as these cases had already been studied exhaustively, they were taken over as the nucleus of this project. The large majority of the cases have been found by taking the names of newly admitted patients when they were presented at staff conference for diagnosis. Significant symptoms which the patients manifested were noted down at the time, and thus some observations were made incidentally.

V. Classification of Cases.

The cases studied fall naturally into three groups—dementia præcox, manic-depressive, and doubtful. There are 100 cases in each group, because we discontinued collecting cases of a given group as soon as that number was reached.

The collection of doubtful cases as such was an after-thought and a bi-product. Among the cases listed with reference to excitement—diagnosed either dementia præcox or manic-depressive psychosis—any cases which evoked a strong difference of opinion were given a special place in the card index, pending further observation. When the criteria for selection were formulated, it became clearly apparent that these doubtful cases were too important numerically

to be disregarded, so we continued to list them up to the number 100. Fifty-eight of these have been definitely diagnosed both dementia præcox and manic-depressive psychosis, either in different hospitals or in this hospital at different times. In the other 42 cases the minority opinion was so strong as to exclude them from either of the diagnosed groups.

SYMPTOMS RECORDED IN MANIC EXCITEMENT AND CATATONIC EXCITEMENT.

One Hundred Cases of Each.

	D. P.	M.-D.
Gross Physical Symptoms.		
Marked cyanosis	8	1
Cerea flexibilitas	15	2
Tube feeding required	27	8
Mental Symptoms.		
Memory defect	31	18
Confusion	64	40
Attention defect	49	28
Distractibility	38	74
Hallucinations	87	43
Paranoid ideas	66	48
Other delusions	52	59
Ideas of reference	34	18
Emotional State.		
Silly, shallow reaction	64	45
Indifference, apathy	52	14
Exhilaration	76	85
Irritability	66	80
Depression	42	49
Instability	57	56
Verbal Production.		
Over-talkative	62	96
Flight of ideas	33	91
Play of speech (rhyming, punning)	10	27
Facetiousness	15	35
Stereotyped speech	29	7
Verbigeration	14	12
Irrelevance	83	60
Incoherence	83	69
Retardation	28	16
Blocking	29	2
Mutism	48	8
Behavior.		
Seclusive	63	17
Sociable	55	73
Resistive	75	36
Over-active	89	96
Playful	17	48
Untidy in habit	64	30
Denudative	38	38
Destructive	44	54
Negativistic	52	8
Impulsive	75	62
Mannerisms	47	34
Attitudes	24	9

VI. Presentation of Findings.

The results of our search through the records for mention of the specified symptoms are shown in tabular form, in parallel

columns for the two diagnosed groups, so that the overlapping symptoms may be conveniently compared.

This table should be examined more with reference to the discrepancies than to find confirmation of what would be expected. In most instances it is the smaller number that should receive attention, rather than the larger number. No one will be surprised to find that such symptoms as hallucinations, indifference or apathy, resistiveness and negativism are observed much more frequently in the dementia præcox group; nor that distractibility, flight of ideas, playfulness and facetiousness are found more frequently in manic-depressive psychosis. It is worthy of notice, however, that so many characteristic symptoms of excitement (not counting the more obvious manifestations which we omitted as being not distinctive of either group) are found almost equally in the two groups; and that each of the symptoms here enumerated is reported in at least one case of the group in which we should not expect to find it. For example, we have a manic-depressive case in which both blocking and cerea flexibilitas are reported, both these symptoms having been checked by our personal observations. The patient is a man of fifty who has been under observation intermittently for 20 years, having been admitted five times to this hospital and invariably diagnosed manic-depressive psychosis with something approaching unanimity. The case conforms as well to our ideal criteria for certainty of diagnosis as can be claimed for almost any case in the manic-depressive group.

Probably some of the discrepancies found in the table are due to the vagueness and uncertainty with which our psychiatric concepts have been defined. It is quite possible, for instance, that what was reported as retardation in some cases of dementia præcox might more appropriately have been characterized as blocking. Many of our manic-depressive cases are on record as having had at least one attack of the depressed form of the psychosis, and it is difficult to believe that the symptom of retardation was actually present less frequently in this group than in the dementia præcox group.

The doubtful cases are not included in the table, because they do not lend themselves to statistical treatment. The significance of the doubtful cases lies in their existence rather than in any symptoms observed in them.

For any patient of the diagnosed groups, one need only glance over the page of symptoms to see upon what the diagnosis was based. It is true that we find startling discrepancies in many cases, and yet it is clear that the majority of the symptoms are in accord with the diagnosis. For the doubtful cases, on the other hand, the symptoms enumerated constitute a bewildering mixture, devoid of any consistency. Feeling in doubt about the diagnosis itself, we are at a loss to know which symptoms may be considered characteristic and which are to be regarded as discrepancies.

VII. Inherent Defects in the Study.

The items found and tabulated are in no sense exhaustive, and we have no way of knowing what other symptoms might have been enumerated for each patient.

Comparatively little attention has been paid to physical findings, except for the purpose of excluding any cases in which such symptoms are believed to be of primary importance. Inasmuch as the technical work has been done chiefly by persons not qualified to interpret the physical findings, it has been a matter of necessity to base the study upon mental symptoms.

When diagnosing a case by mental symptoms it is difficult or impossible to rule out the personal prejudices of the observer. Each of our items represents the opinion of someone, an opinion on which we have no check. Nor does our work of collecting the data admit of strict controls. Varied and insidious are the ways in which the personal equation can creep into a research that is intended to be as objective as we can make it. Our interest in this problem has frequently come to the surface in the discussions at staff conference, and it must have had some influence upon the diagnosis offered by the physician presenting a case. However, the natural effect of this influence would be to swell the list of doubtful cases rather than to distort the evidence in favor of either diagnosis. The confidence with which we used to accept the diagnosis of manic-depressive psychosis received a rude shock in the course of the earlier study, when we found it necessary to reject 31 per cent of the cases so diagnosed. Our habits of thought with reference to diagnosis have been appreciably affected by that experience, and our sense of uncertainty must inevitably have spread to our colleagues. Hence it is not significant that we completed the list

of doubtful cases nearly a year ago whereas we had to go outside of this hospital to make up the list of manic cases. The ease with which we collected 100 doubtful cases may be somewhat discounted as a peculiarity of this hospital at this time; but by the same token we can claim a higher degree of reliability for the diagnoses which meet the requirements of our criteria. It is far more likely that we have erred in excluding some cases which might safely have been used in one of the diagnosed groups than that we have accepted under either diagnosis any cases which should have been counted as doubtful.

VIII. Significance of the Findings.

It is not safe to draw definite conclusions from a statistical study based upon so small a number of cases, especially when the material was obtained by so crude a method as merely noting and tabulating such items as happened to be on record. However, the findings are not wholly without significance.

It is pretty well recognized that diagnosis by mental symptoms is little more than a makeshift; but inasmuch as state hospital patients are actually being classified in accordance with these manifestations, it is of some advantage to know the sources of error and to have some of the resulting inaccuracies expressed in figures. It is to be hoped that our present emphasis upon mental symptoms in the diagnosis of these two conditions is only a temporary expedient. The writers of this paper can remember when the diagnosis of general paresis was based largely upon delusions of grandeur accompanied by certain gross neurological findings. It is not too much to expect that we may sometime have a method of differentiating manic-depressive psychosis from dementia præcox, considerably more accurate than any method now available. But so long as we make use of crude descriptive methods which do not admit even of psychological experimentation, it is worth while to consider what might be done to make the inevitable errors in diagnosis a little less far-reaching in their effects.

If our results prove anything at all, they show that it is frequently a matter of years to determine the diagnosis that the hospital is expected to put on permanent record within one month. If we have learned anything from our seven-year study of patients

classified as manic-depressive cases, we have learned that there are cases which we cannot diagnose to our satisfaction even after years of careful observation.

It is therefore unfortunate for the accuracy of our statistics that many state hospitals are held responsible for naming a diagnosis in each and every case. The category of "undiagnosed psychosis," formerly recognized as a necessary provision for undiagnosable cases, is now usually accepted only for temporary classification, pending a "determined diagnosis." Our work on these records leads us to believe that the official recognition of an undiagnosed group would add greatly to the significance of diagnosis for such cases as can be diagnosed. If our 100 doubtful cases had been included in the two diagnosed groups, they would have increased the number of cases in each group but would at the same time have so vitiated the results as to make the findings entirely worthless. It is because we have so scrupulously weeded out the doubtful cases, (not only those cases that are technically open to doubt by reason of having been definitely classed under more than one diagnosis, but also those cases which elicited a strong difference of opinion), that we can claim any significance at all for our findings of overlapping symptoms in these two conditions. Of course the overlapping would be much greater if we had included all cases under the diagnoses accepted by the hospital; but so much of the overlapping would be due to inevitable error in diagnosis that it would not seem worth while to collect and tabulate the figures.

For the same reason, state hospital statistics in general would gain in accuracy if the category of "undiagnosed psychosis" were used freely for all cases that cannot be diagnosed with a reasonable degree of certainty. Nor need it be feared that the staff physician would take advantage of this privilege merely to avoid the effort of working up a difficult case. The typical state hospital physician—young, alert, deeply interesed in psychiatric problems—is in his element when presenting a case which stimulates lively discussion and evokes honest disagreement. It is not the labor of looking up all the available evidence that discourages the young psychiatrist from doing his best work on a case, it is rather the feeling of futility arising from the fact that he is expected to attempt the impossible. When he knows that a case is practically undiagnosable

at the time of presentation, it is an affront to his intellectual integrity to expect him to offer a conjecture concerning diagnosis, especially so when he knows that the alternative is to let his patient be diagnosed by others who are less familiar with the case.

The confusion we have found between two conditions so different in respect to the prognoses which they imply leads us to believe that there is much work to be done in defining our psychiatric terms. Not until we have names that can be understood and a system of classification that can be followed with some approach to accuracy can we expect statistical studies depending upon mental diagnosis to have much value except as negative contributions.

THE HEMATOPORPHYRIN TREATMENT OF MELANCHOLIA AND ENDOGENOUS DEPRESSION.

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The hematoporphyrin treatment of melancholic and endogenous depressive disorders, which was first advocated by me, has aroused lively interest on the part of German and foreign authors. A number of American investigators have also studied the therapy. The publication, some time ago, of the findings of Strecker, Notkin and their associates in the AMERICAN JOURNAL OF PSYCHIATRY, was quite recently followed by Angus' and Steinberg's reports in the same JOURNAL. These various reports induce me to summarize briefly the facts relating to the new therapy which have been ascertained up to the present time. This will serve best to remove obscurities and to present new viewpoints.

Some chemicophysiologic facts will require preliminary attention. As is known, hematoporphyrin is derived as follows:

Hemoglobin
is decomposed into

the dye, *Hematin* — the protein, *Globin*

after substitution of an OH-group by Cl

Hematin hydrochloride = *Hemin*

after cleavage of the iron

Hematoporphyrin

Nencki and Sieber still assumed that hematoporphyrin is formed simultaneously with bilirubin in the organism, particularly in the liver cells. Recent researches, in particular those of H. Fischer and his associates, have shown however that this assumption lacks definite proof. Actually, the chemical composition of the so-called "natural" porphyrins (*i. e.,* porphyrins which occur in the human and higher animal organism) differs distinctly if not considerably from that of hematoporphyrin. Whether this dyestuff is partly converted into a "natural" porphyrin following its oral or par-

enteral administration has not so far been determined. Experiments designed to clarify this point were undertaken at my instigation by Hutschenreuter, under the direction of O. Schumm, but failed to yield the desired elucidation. Nevertheless, Hutschenreuter showed that by far the greater part of the administered hematoporphyrin is excreted, and further studies are in progress.

Bearing in mind that all porphyrins can be derived from Willstaetter's "Aetioporphyrin" (a dye with saturated side chains, which is termed a porphyrin ring), we however recognize the close relationships which exist between the individual porphyrins, including hematoporphyrin, despite the differences in their chemical constitution. And, seeing also that all porphyrins possess one definite property in common, *viz.*, their photodynamic action, these relationships are rendered still more apparent.

It was the photodynamic properties of the porphyrins which caused various authors to study these substances. We are indebted to Hausmann and Guenther for the pioneer investigations in this field, while O. Schumm and his school have furnished the more recent findings. This much is certain, that the intensity of the photodynamic action of hematoporphyrin exceeds that of all other known porphyrins. For this reason I selected hematoporphyrin for my own studies, since it would enable me to achieve the desired effects with the smallest doses and without danger of inducing toxic secondary symptoms which might manifest themselves under administration of larger doses of a photodynamically less active porphyrin.

By means of animal experiments and clinical studies I was able to show that hematoporphyrin actually sensitizes, even when given in minimal dosage, without unfolding the slightest toxic secondary effects. The animals which received hematoporphyrin became livelier and more agile, their appetite improved and they gained weight. In the treatment of melancholic and endogenous depressive conditions the photodynamic effects of the dyestuff manifest themselves particularly in the severely inhibited cases. Often a few days' treatment suffices to bring about a relaxation of the condition, inhibition regresses, and the movements, facial expression and vocal expressions become livelier.

As regards the use of light sources along with the hematoporphyrin treatment, I have not so far adopted any particular source. I

have employed irradiation with the alpine lamp not so much for therapeutic purposes as to convince myself that intense radiation does not cause secondary cutaneous and mucosal symptoms. G. Koegel has recently found that though the concentration of hematoporphyrin which I employ is sensitive to all rays of the visible spectrum, and infra-red, ultraviolet and Roentgen rays of medium wave length, it becomes most active in the yellow. Consequently I consider it desirable to determine whether the selection of particular sources of light might not further reinforce the therapeutic effects of the hematoporphyrin therapy.

I have previously stated that just the sensitizing properties of hematoporphyrin induced me to apply the drug to the treatment of depressive and melancholic disorders. I proceeded from the assumption that this dyestuff might be capable of influencing the vegetative centers through skin sensitization and thereby exert a favorable action in the sensory and volitional spheres. It must be emphasized that this assumption is of value, for the time being, merely as a working hypothesis, though it appears to gain in probability by reason of the observations which I as well as other authors have made in the course of the years. Thus, it has been shown that when hematoporphyrin is administered in the dosage which I employ, it unfolds not merely a photodynamic effect but acts also in two other directions, *viz.,* stimulative-tonic and vegetative-regulatory.

The stimulative-tonic action manifests itself by striking improvement of the appetite, increasing bodyweight, and in the case of attendant secondary anemia by a favorable influence on the red blood picture. In many cases the skin changes are particularly striking. Soon after the institution of the hematoporphyrin treatment the skin becomes more tense, and shows increased turgor, so that the appearance of the patients improves and they not infrequently "bloom" anew. This stimulative-tonic property of hematoporphyrin was observed not only by me, but was also expressly emphasized by other authors (for instance, by Bianchini, Giehm, Klimke, Strecker and his associates, Tieke, and Vinchon). This property of hematoporphyrin is rendered understandable by the researches of Boyd and Wohlgemuth-Szoerenyi, who found that in the presence of pigment sensitizers (to which hematoporphyrin belongs), the oxygen consumption of the living cell increases even

in the dark and still more when the cell is simultaneously exposed to light. The action of hematoporphyrin in this case resembles that of its chemically closely related chlorophyll, which Buergi showed to influence not only erythropoiesis and hemoglobin synthesis but also to increase the metabolic rate.

Quite as distinct as the stimulative-tonic action is the regulatory action of hematoporphyrin in those disturbances which are conditioned by changes in the vegetative equilibrium. In the course of the treatment of melancholic and depressive conditions I have observed improved salivary secretion and regression of the frequently occurring gastrointestinal disturbances and unpleasant symptoms such as fulness of the abdomen and a sense of oppression in the chest. A favorable influence is also exerted on functional cutaneous disturbances, like sweating, changes in sebaceous gland secretion and conditions based on vasomotor disturbances. My observations have been confirmed by Aussaye, Bourgeois, Cimbal, Strecker, Palmer and Braceland, Vinchon and others. The vegetative-regulatory action of hematoporphyrin extends also to the disturbed electrolyte balance. The increased calcium and decreased potassium values which are often found in melancholic patients return to the normal. Kueppers, and more recently Angus, found that in many cases the increased blood sugar values were lowered, while the previously markedly fluctuating sugar tolerance curves again showed a normal course. The French authors showed that hematoporphyrin regulates the hydrogen-ion concentration (pH) of the urine, which often shows a displacement toward the alkaline side in melancholic affections. In this respect the action of hematoporphyrin is the same as that of the acidic drugs which have been employed by Laignel-Lavastine and Cornelius.

Thus we see that when hematoporphyrin is administered in the doses advocated by me it acts not only photodynamically but also stimulatively-tonicizing and vegetatively-regulatorily. This confers on it high therapeutic importance. As a matter of course, I am compelled to admit that not all of the aforementioned modes of action of hematoporphyrin manifest themselves in every case which is treated with it. If that were the case, the hematoporphyrin treatment would signify perfection, to which no therapy can lay claim. I maintain, merely, that the photodynamic, stimulative-tonic and vegetative-regulatory properties of hematoporphyrin become op-

erative in the majority of the cases in most of the described directions. This does not exclude the existence of individual cases in which only some of the characteristic effects manifest themselves, or that certain facts observed in the majority of the cases cannot be determined (for instance, an influence on the electrolytes and blood sugar, or similar ones). It is therefore incorrect to appraise the effects of the hematoporphyrin therapy on the strength of a few clinically or experimentally determinable facts. On the contrary, it is necessary to take into consideration the totality of the effects which can be expected from the hematoporphyrin therapy, by reason of its photodynamic, stimulative-tonic and vegetative-regulatory action, both at the bedside as well as in the laboratory as far as the latter will allow.

Already in my early publications I pointed out, on the basis of my experience, that the hematoporphyrin treatment is indicated chiefly in the depressive disorders of the manic-depressive domain. Having studied the problem for the past seven years and familiarized myself with the observations of other authors, I am now able to maintain this view to its full extent and to expand it by stating that, not only severe and very severe forms of endogenous disturbances, but also the milder forms, are favorably influenced by the treatment. On the other hand, I believe that exogenously conditioned depressions will respond to the treatment only if endogenous factors participate, though but slightly, in the disease picture. The hematoporphyrin treatment is not suitable as a causal therapy for the depressive phases of schizophrenic psychoses, which probably have quite a different etiologic basis. Notwithstanding this, it is possible to influence favorably the depressive affect, general somatic condition and functional vegetative disturbances in some of the cases. On the other hand, the hematoporphyrin treatment acts favorably in conditions which have been specified by Vinchon, Andre and Cimbal. The excellent results which the French authors achieved in those cases which, in their view, are conditioned by vegetative-dystonic and particularly by vagotonic factors, are to be explained chiefly by the vegetative-regulatory action of hematoporphyrin (for instance, hayfever, migraine, asthma). Cimbal stresses the stimulative-tonicizing action of hematoporphyrin, and he treated mentally depressed juvenile patients with correspondingly smaller oral doses with favor-

able results. He also obtained good results in attempts to increase the capacity of children and juveniles, for instance during examinations, school hours and other transiently heightened demands.

The researches of Vinchon, Andre and Cimbal furnish new fields for the use of hematoporphyrin, though I fully realize that proper conservatism is desirable in endeavoring to extend the indications. However, having regard to the therapeutic properties of hematoporphyrin, I think that the findings of these authors should be subjected to further study. I believe, also, that research in this direction should prove particularly interesting and attractive because it may possibly yield a deeper insight into the mode of action of the hematoporphyrin therapy.

I have so often dealt with the strength of the hematoporphyrin solution which I employ, as well as with the dosage and method of administration, that I may here confine myself to a few hints. The dosage which was proposed by me and which varied according to the severity of the individual case, has been found suitable also by other authors. Although a few observers (Andre, Bianchini) believe that larger doses of hematoporphyrin may be given safely, I do not recommend increasing the customary dosage because the latter assures the avoidance of injurious effects with the greatest certainty. But it would be equally wrong to employ underdosage from a wholly unfounded fear of toxic effects. This applies particularly to the severe and very severe forms of melancholic disorders which require simultaneous oral and parenteral medication. The unfavorable results which have been reported by some authors, for instance by Steinberg, in severe melancholias are in my view ascribable partly to underdosage of hematoporphyrin in the patients in question. I regard the hematoporphyrin treatment as contraindicated only in the presence of severe, acute febrile conditions or organic liver affections. In other diseases, even of a more serious nature, such as pulmonary tuberculosis, myodegeneration of the cord, nephrosis and arteriosclerosis, I have never observed an exacerbation of the bodily condition under cautious oral administration, which could be referred to hematoporphyrin. On the contrary, I found improvement of general condition in some cases.

A summary of the results of the hematoporphyrin therapy which takes into account only those authors who reported the number of treated cases and the degree of the improvement, shows that

up to the present about 400 cases (including my own and those reported by the American authors) have been described. Among them are 327 consisting for the most part of severe forms of melancholia and endogenous depression. Of these 327 cases 98 were distinctly improved, 162 cured or greatly improved, while only 67 remained entirely uninfluenced.

Of the 25 authors who investigated my observations, only Notkin and his associates and Steinberg obtained negative results. As regards Notkin's cases it should be borne in mind that one-half of the patients were schizophrenics; in the involutional melancholias however the treatment achieved a strikingly favorable influence on the red blood picture and bodyweight, besides psychic improvement in a few cases. In relation to Steinberg's findings, I believe that this author would have obtained better results had he employed larger doses of hematoporphyrin in his severe and partly diagnostically uncertain cases. All other authors however confirm my own observations. The majority of them observed the same characteristic clinical effects of the hematoporphyrin therapy as I did. Improvement first manifests itself on the somatic-vegetative side of the disease picture and subsequently extends to the psychic field, in which the inhibitory symptom usually disappears first. These authors therefore agree with me in thinking that the possibility of spontaneous remissions may be excluded and that it is obviously permissible to ascribe to hematoporphyrin a specific influence on the melancholic and depressive conditions.

According to my experience, which has been confirmed by other authors in the interval, those melancholias and depressions whose disease picture is dominated by the symptom of inhibition respond best to the treatment. Among the patients who are influenced only slightly or not at all, are to be found mostly cases in which marked anxiety complexes and lively hallucinatory elements predominate. This agrees also with the results of the treatment in involutional melancholias, which often include agitated and anxious patients. Of the 67 cases included in the 327 previously mentioned, one-third failed to respond to the therapy, that is, a considerably higher percentage of this type failed to respond than of the other forms of depression. In order to render the hematoporphyrin therapy still more efficacious it will be necessary therefore to attain a more exact demarcation of melancholic and depressive conditions, as has been justly emphasized by Schwarz. On the other hand, I have

found that some patients improved quite suddenly following brief treatment, while the majority improved more slowly (in about 10-14 days); in rare cases the improvement was still slower or only a few symptoms were influenced. Herein pathophysiologic processes, which are probably intimately related to the porphyrins, may be assumed to play an essential rôle. If these relationships could be clarified, it might be possible to render the cases which are now resistant toward hematoporphyrin amenable to the therapy.

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CONCERNING SCHIZOPHRENIA AND MANIC-DEPRESSIVE PSYCHOSIS ASSOCIATED WITH PREGNANCY AND CHILDBIRTH.

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It is perhaps safe to assume that one woman out of a thousand shows evidence of some mental disturbance during pregnancy or following childbirth. While it is difficult to estimate the number of those who develop psychoses, it is possible to say that two to three women out of each thousand admitted to a hospital for mental disease show the onset of psychosis to be associated with the generative process.

The mental reactions that such patients may show are variable. The present study concerns itself with schizophrenia and manic-depressive psychosis as related to the stated epochs of womanhood.

While psychological research has contributed greatly to the understanding of the problem, we believe that the physiology has been insufficiently studied. A better understanding of the latter is demanded by the concept of the unity of functions of the individual since it is obvious that the enormous psychological and physiological changes and readjustments which are going on in the person during pregnancy and childbirth must be influenced by each other.

From the extensive literature dealing with the post-partum psychoses I shall mention only the following authors who have recently discussed the problem and who have also reviewed the literature.

Zilboorg approached the problem from a psychoanalytic angle and evaluated the sex life of the patients. In his cases he found faulty heterosexual adjustment to be outstanding. Masturbation, frigidity, late marriages, etc., were constant features. The mental content of such cases he found to be predominantly one of rejection of the marital situation which can be interpreted as a manifestation of homosexuality.

Anderson investigated a number of puerperal psychoses and a number of similar cases not associated with childbirth. He found

that in both groups the majority claimed satisfactory sexual adjustment, in fact marital unhappiness was more frequent in the control group. No material difference was revealed in the pre-psychotic sexual life in both groups. He concluded that there is no evidence that the psychoses associated with childbirth are necessarily due to the factors brought out by Zilboorg, and denies that the puerperium acts as a specific precipitating factor.

Frumkes working with the material of Manhattan State Hospital found that there is no difference between post-partum schizophrenia and manic-depressive psychosis and the same psychoses otherwise developed. He approached the subject from the viewpoint of Zilboorg with whom he is in agreement concerning the dynamics of the situation.

These authors have investigated the problem from a descriptive, interpretative or "symptomatic" angle. We shall attempt to examine it from a broader standpoint, namely that of the total personality, emphasizing the degree of harmony or integration and unity of functions achieved by the person and its relation to psychotic manifestations arising under stress of pregnancy and childbirth.

Our Material.

A large number of post-partum cases were observed over a period of several years of whom 30 cases of schizophrenia and 30 cases of manic-depressive psychosis were studied. These cases were free from any demonstrable physical disease and there was no history or evidence of toxic, infectious or exhaustive factors. Some had previous hospital residences Their ages ranged from 18 to 39 years. The study was concerned with the following items:

I. Immediate data:
   a. Primapara or multipara.
   b. Mode of onset of psychosis.
II. Personality data:
   a. Total affectivity.
   b. Sex impulse.
   c. Maternal impulse.
   d. Inter-sexual conditions.
III. Mental content.
IV. Pathological data.

Since psychiatric terminology is still in want of exactness of expression, a few words seem necessary to denote what we understand as the meaning of some of the above mentioned items. From a biological viewpoint, total affectivity in its rudimentary form must be identified with the " mental component " of the cell, the original irritability. It must conform to the same laws of integration as the nervous system and be concomitant with the character of the total personality, its development being a result of evolutionary adaptation of the protoplasm organized by experience. It passes from simple sensory impressions and perceptions to capacity for abstract imagery, creating a tendency to prefer values of certain coloring which influence and even condition the individual gnosis and praxis.

Impulse is only part of total affectivity. It is humoral or biochemical in its source, bound up with endocrine, autonomic and psychic activity which flows over into the associational and motor functions. (Kretschmer.)

The question of inter-sexual conditions, we take in the sense of Maranon, namely that the masculine and the feminine are not two diametrically opposed entities but successive degrees of the development of a single function, that of sex. There is a peculiarity that the functional disturbance is much more intense than the anatomic, and that along with organic inter-sexuality there is also an affective inter-sexuality. Maranon also warns not to confuse inter-sexuality with homosexuality and misinterpret findings of modern biology in an off-hand opinion that all men are more or less homosexual.

The following cases illustrate:

Case 1.—Jewish woman, age 31, came to the U. S. at the age of seven. Early development believed normal. No particular attachments known. She received an average education and worked efficiently as a stenographer. She is described as a person rather reserved, strong-headed with strong likes and dislikes, ambitious and strong in her appetities. At the age of 22 she had an automobile accident. Two weeks later she became depressed and entertained suicidal ideas. She recovered in about three weeks at home. About one year later the patient fell in love and married secretly. Marriage was a failure; her husband treated her brutally. She promptly became pregnant and following delivery became depressed and sleepless and would not eat or talk. She recovered in about three months. She remained fairly well adjusted for about two years when she delivered a second baby. Again following childbirth the patient became depressed, self-accusatory. This condition alternated with

excitement of a manic character. She recovered in about one year, and remained well for some four years when she developed another state of depression, was suicidal and had to be hospitalized. She remained in the hospital for four years until her death, having had typical, alternating phases of manic excitement and depression.

This patient showed masculine features in her make-up. She had male distribution of hair and was of asthenic build. Sexual impulse was of masculine order prompted by orgasm. Maternal impulse apparently very low. Her affect and impulse were in harmony. She had a previous attack before marriage precipitated by trauma. Both post-partum psychoses were of a manic-depressive nature.

Case 2.—Puerto-Rican woman, age 28. There was a history of mental trouble on the maternal side. Early environment was unfavorable. Parents did not get along and finally separated when patient was very young. She grew up to be a seclusive, very sensitive and jealous individual, was ambitious and had superior cravings. She completed a nurse's training course and occupied herself in this line. At the age of 20 patient had an illegitimate child and shortly after this her paramour married, following which she came to New York. While here patient married and her husband died shortly afterward. She remarried a man much inferior to herself. She had with this man three children. She did not stand pregnancies well, would show mental traits, would be very jealous of her husband for whom she did not ordinarily care, was uneasy and nervous about the child and would be fearful. Pregnancies had to be interrupted except the present one. The present pregnancy was of the same character. In the final stage patient began to express fear over the child and the future, was worried, became agitated and finally developed ideas of persecution. In the hospital she evidenced extreme agitation and admitted this to be due to hallucinations. She was afraid of being killed and attempted suicide. She heard voices telling her her children were dead, that she and her husband were dead. Her sensorium was clear. Following the acute excitement she became mute, apathetic and inactive. She has remained hallucinated and unimproved.

This case was diagnosed dementia præcox, paranoid. She was morphologically a well-equipped woman. Her maternal impulse was only moderately strong, sex impulse rather strong and affectivity unstable. She had no use for her husband whom she considered inferior. Her difficulties would usually set in during the final stage of pregnancy.

Case 3.—Spanish woman, age 32. Early development uneventful, average education, domestic by occupation. No history of diseases, injuries and toxic

influences. Described as temperamental, reserved, sensitive and religious. Married for the first time at 18. Had one child and separated from her husband because of his unfaithfulness. At 27 remarried. Was frigid but had great desire for children. During last pregnancy showed mild toxic symptoms. One week following a normal delivery she became depressed and expressed a wish to die. In the hospital she was agitated, depressed, hopeless in her mood; she had ideas of guilt and believed she had an incurable disease. Her sensorium was clear.

The case was diagnosed manic-depressive psychosis, mixed type. It showed all the ear-marks of an involutional psychosis. Outstanding personality feature was discrepancy between various impulses. While patient was frigid she had a strong maternal impulse. Morphologically she was a hypoplastic individual.

Case 4.—Irish woman, 34 years old. Her mother died when the patient was four years old. She formed a strong attachment for her father. She had some schooling but was considered dull. She, however, was efficient at her work later and held well remunerative positions. She married at the age of 19 and marital adjustment was good. She is described as a sociable, friendly person, a devoted wife and mother. Five days following her first childbirth she became elated, over-active, talked in a flighty manner and expressed grandiose ideas. She had an idea of getting another child. She was considered a case of manic-depressive psychosis and made a rapid recovery. Ten years later she was readmitted with a history that she had been well adjusted, had had two more children, one of whom was crippled and the other had died. One month previous to admission her father died. She became depressed, expressed a wish to die, was self-accusatory, blaming herself for her child's death and for having a crippled child, was suicidal. She made another perfect recovery.

The case showed a rather pronounced maternal impulse. She wanted a larger family but was afraid to have more children. Her affect was in harmony with impulse life. She had no psychosis following subsequent childbirths but developed one following death of father to whom she was quite attached. Morphologically she was a well-developed woman.

Case 5.—Woman aged 39, born in the U. S. She was the only child and was brought up in a rather religious atmosphere. She was left an orphan at the age of ten and was further brought up by an aunt to whom she was quite attached. She had an average education following which she worked at domestic positions. Striking temperamental traits were sensitivity and sentimentality. She had no relations with the opposite sex until she met her husband. She became pregnant prior to marriage and upon the insistence of her husband had an abortion performed. Later they married legally and she

gave birth to two children. Following first childbirth her disposition changed. She became irritable, suspicious, emotionally unstable. Shortly after each childbirth she would express hostility toward her husband and would have suicidal thoughts and feelings of injuring her children. She never fully recovered but was not hospitalized. Six months previous to admission her condition grew worse. She became depressed, agitated, entertained pronounced ideas of killing herself, her children and her husband. In the hospital she was considerably depressed, had suicidal ideas, ideas that people were passing remarks that her husband was dead, dreamt that her children were being attacked and had a vision of the Lord who promised her guidance. Her sensorium was clear. She remained unimproved for some six months and later made a good recovery.

This patient was morphologically a fairly well-developed woman. Her affect was strongly selective and in harmony with impulse life. At the time of admission she gave evidence of going through the climacterium. Mental manifestations appeared after each pregnancy and at the beginning of the involution period. Her hostility toward the husband was partly the result of affective polarization dating back to the event of abortion which was of great significance to the patient, causing religious conflict. The ideation referable to suicide and infanticide we shall discuss later. She recovered following administration of 600 units of theelin.

Case 6.—Jewish woman born in the U. S., age 31. Had an older sister who developed a transitory psychosis following an operation. Patient's early development is unknown but is believed to have been normal. She received an average education following which she worked in a dress factory. She was a reserved person, egotistical and sentimental, having cravings for superior things. She married at 17 but had no affection for her husband. She was frigid and marital life was not happy. She had a desire for a child but did not have any for several years. After childbirth, coming home from the hospital, she woke up at night after having a dream that her husband was killed. She went into a state of excitement. She continued so, later worried considerably and had a fear of injuring her child and herself. In the hospital she was in a catatonic state and made suicidal moves. After about one year of hospital residence she improved sufficiently to be allowed to go home.

This patient was of an asthentic type with suggestion of thyroid deficiency and considerable evidence of an inter-sexual condition. Affect was cool, sexual impulse low, maternal impulse insecure. Of interest is the relation of dream activity overlapping into consciousness, which is not infrequently met at the time of onset of psychosis. The ideation will be discussed later. She improved

after administration of 1000 units of antuitrin-S and 1200 units of theelin.

Case 7.—Colored woman, aged 28. Had an uneventful childhood as far as known. Received an average education following which she occupied herself in domestic lines. She is described as a sociable person, quite active and determined. She had no relations with the opposite sex until her marriage at 25. Husband was a rather submissive, effeminate type. Marital situation was satisfactory, patient being the leader. She became pregnant promptly and had a baby at full term. During pregnancy she was nervous and unstable. Following childbirth she was unstable, depressed, was fearful for the child and hostile toward her husband, but recovered in a short time. Three months before admission she had a miscarriage following which she became again unbalanced, became suspicious and developed ideas of poisoning. In the hospital she was abstractedly happy, denied her marriage and expressed the idea that no man could have her. She made frank homosexual moves toward other patients. She recovered after about six months of hospital residence.

This patient presented an athletic type. Her affect and impulse were of masculine order, as is seen in the choice of husband and expression of sexual impulse. Her homosexual assaults during her psychosis would suggest strong inter-sexual tendencies. She recovered following administration of 1200 units of theelin.

Case 8.—Female, aged 23. Dysplastic habitus. Showed obesity of pituitary type. Described as egotistical, asocial and unstable. Married against advice of her family out of her race and religion. Marital adjustment was poor. She did not want to have any children. After about three years of married life she became pregnant, was quite upset about it but later became over-enthusiastic. Eleven days post-partum she became excited and restless, imagined her child might be injured or infected. Her agitation increased. In the hospital she showed an extreme catatonic state. She died three days following admission. Cause of death believed to be due to exhaustion following excitement. Autopsy findings: brain was unusually large, 1443 gms., markedly congested, edematous, making appearance of acute swelling. Heart showed fatty myocardium, coronaries small. Aorta small, hardly admitting index finger. Lungs, liver, pancreas, spleen and kidneys engorged. Sex organs showed no sign of infection, uterus partially involuted, pituitary very large, 0.9 gms. Ovaries very large. Microscopically, spleen found hemorrhagic, organ appeared broken down, cells being held loosely together. Liver, cells swollen, cytoplasm broken down. Areas of marked acute degeneration. Thymus showed islands of persistent and probably active tissue. Pituitary markedly hyperæmic and marked diminution of eosin-staining cells. Ovaries extremely congested. Considerable fibrosis present. Numerous cysts some of which suggestive for remains of corpus luteum, other cysts of unknown origin. Very few rudimentary graafian follicules.

Case 9.—Female, aged 29, Athletic type. Described as a good mixer, quite active, activity being of masculine order. Married one year. Marital adjustment believed good. Two days following delivery she became excited, expressed ideas that she was to be killed, that somebody is going to kill her child and husband. In the hospital was in a pronounced catatonic state. She died after about two and a half months of residence. Cause of death was not very clear, chronic nephritis suspected. Autopsy findings: heart and aorta normal. Lungs congested. Liver increased in weight and resistance. Spleen and kidneys markedly congested. Many small petechial hemorrhages. Brain very congested and edematous. The blood vessels of brain showed arteriosclerotic changes. Microscopically lungs showed hemorrhagic condition in some places. Spleen was hemorrhagic. Pituitary negative. Ovaries very congested, sclerotic changes of vessels. There were numerous cysts throughout, apparently of corpus luteum origin. Primitive graafian follicules sparse.

Cases 8 and 9 showed the same immediate and personality data as the other cases. The pathological findings will be discussed later.

Summary.

The results of the investigation may be thus summarized:

I. Concerning immediate data we find that among the 60 cases there were 33 primaparas and 27 multiparas. There were eight cases associated with pregnancy and in 52 psychoses followed childbirth. The onset of psychosis during pregnancy was found to be gradual, characterized by instability, unrest, mild anxiety, depressive mood with swing to elation, usually accompanied by insomnia and sometimes by headaches. In the post-partum psychoses the onset was rather sudden. In the majority of cases it would begin with excitement, in others with depression. The usual onset was between the first and fourteenth day. It was quite characteristic that the onset was related to the time of the patient's return home from the hospital, which was usually the tenth or twelfth day post-partum. At any rate the psychosis manifested itself during sub-involution, a point which, as will be seen later, is of importance. In case the onset was later there were prodormal signs during sub-involution. In the beginning there was very often a somatic element present, the more pronounced the closer the onset was to delivery.

II. Personality data can be tabulated as follows:

	Schizophrenia	Manic-depressive psychosis
a. Total affectivity:		
Strongly differentiated	6	16
Diffuse	10	5
Ambivalent	5	9
Cool	9	0
b. Sex impulse:		
Strongly selective	6	13
Diffuse	11	10
Insecure	9	6
Frigid	4	1
c. Material impulse:		
Strong	6	12
Weak	11	6
Passive	8	8
Absent	5	4
d. Inter-sexual conditions	9	14

In the manic-depressive group there is often a history of a previous attack and there are cases which show a manic state of affairs during each pregnancy or after each childbirth. In the majority of cases the total affectivity and impulse-life are harmoniously integrated. Manifested affect whether elation or irritability is evenly distributed, everything pleases or irritates the patient, there is no exclusive investment of affect, but rather pathological accentuation.

In schizophrenia the situation is quite different. There is obvious discord in integration of affectivity and impulse. We often meet, for instance, an insecure impulse and differentiated affectivity which may result in deceptive outward manifestations; for example, shyness and seclusiveness often harbors a rather strongly differentiated impulse. Moreover affectivity is not flexible, often exclusively and unmovably invested, and dissociation is present.

Our findings concerning pre-psychotic sexual life such as frigidity are confirmatory to the findings of Anderson. While frigidity may be present, it is not particularly prominent. The age of marriage of our patients was between the ages of 16-28.

Intersexual conditions were present in both groups. Again it is differently expressed in the two groups. If we consider the sexual

impulse as a certain form of energy originally released by a biochemical, hormonal principle and evoluting into a force of infinite organic and psychological complexity, we find that the psychological component plays a greater rôle in the manic-depressive cases than in schizophrenia. On the other hand, impulse is of greater significance in the schizophrenic. Male distribution of bodily hair which is associated often with genital hypoplasia and dysplasia are more conspicuous in schizophrenia. In the manic case a very interesting feature is the outline of hair of the fronto-parietal region which has the masculine convex form, and which is quite pronounced. Activity is often of masculine order, the voice may also have a male character in the manic.

III. Mental content. The ideation in the manic state is the usual one. The patient usually betrays her aspirations and solves them in a grandiose manner, for instance, a patient who is very fond of children expresed the idea that she is going to have more children and immediately. In case of rejection of the husband the cause is very easy to trace and is referrable to social or biological inferiority of the husband; for example, a patient who had superior cravings and whose husband was inferior to her in both aspects, spoke in her psychosis of marrying the Prince of Wales. They may sometimes deny marriage, but there is no such absurd compensation as in the schizophrenic. No infanticide ideas were met in the manic state but such ideas are not infrequent in depression. We shall discuss this point presently; the depressive phase offers otherwise the usual syndrome.

The ideation of the schizophrenic is differently expressed. We are interested for the present in the question of rejection of the marital situation. The denial of the latter may assume a bizarre form, and its expression is a matter of degree. From simple hostility it may progress to ideas of virginity and further to identification with the Holy Virgin. Ideas of infanticide are common. Here we can trace at least two ways of their construction. In certain schizophrenics and in the depressed phase our findings are confirmatory to those of Hopwood. We find the primary idea to be suicide, which overflows and may enclose husband and child. (We have discussed the possible mechanism of suicide in another study.) In cases of this type infanticide seems to be prompted by the affect of sorrow for the fate of the family. It is of interest

that in the pre-psychotic personality of such patients we find sentimentality to be an outstanding trait. In other cases infanticide must be regarded as a projective expression, and belongs primarily to the domain of impulse. The projection is also a matter of degree. It may involve child, husband and may progress to ideas of world destruction. In certain cases of catatonia when the extreme excitement or stupor subsides the patient may have no recollection of her previous ideation (such amnesia being often unjustifiably doubted). This seems to go with White's interpretation of catatonia on psychological lines when he states that the catatonic endeavors to shut out from consciousness his conflict by a supreme effort of repression. Biologically we like to interpret this as a vigorous effort on the part of the auto-regulation of functions ("biological conscience," von Monakov) to restore balance.

IV. Pathological data. In conjunction with our other work we have reason to believe that certain autopsy findings are of considerable importance for our problem. We wish to call attention to the damage to the reticulo-endothel which is quite pronounced and to ovarian changes. The latter have shown considerable damage. The changes suggested circulatory disturbance which obviously must impair nutrition and consequently secretion, with luteinization and conspicuous reduction of graafian follicules. We shall discuss these findings in conjunction with otherwise well established physiological changes which occur during pregnancy.

Comments.

With the foregoing in mind we shall now examine the significance, if any, of the data obtained in the course of our investigation. Here again we like to point out that in order to understand the mechanism of dissolution of the total personality we must understand its evolution and the ways of maintenance of its balance. To be sure a great deal has yet to be learned, still it seems obvious that in all these conditions multiple factors are at work, factors which are closely interwoven and interactive. An important factor in "maintenance" is the system of defense of the individual. This system expresses itself from simple reflex to rather complex humoral and cellular activity. Clinically, therefore, it is essential to investigate this dissolution, step by step all along its development, in both psychological and physiological fields.

Bleuler has convincingly discussed the significance of psychogenesis and physiogenesis in schizophrenia. While there may be no doubt about it, we have no possibility as yet to identify mental manifestations as arising from specific physiological mechanisms nor do we believe this to be exactly the case. However, considerable abnormalities in various functions of the schizophrenic are recorded by all workers on the problem. It is true that the findings are non-specific and inconstant, still they may justify the opinion that we deal in this psychosis with altered bio-chemical states of the organism. We are unable to estimate such changes but due to the fact that the primary integration of the organism is physico-chemical which combines itself very early in embryonic life with the nervous system upon which in turn the psychical function is constructed and oriented, it is significant. We wish to emphasize, however, that the psyche, which has its roots in the entire structure of the total personality (see our definition of the latter in a former study), is necessarily wider than neurophysiologic processes. The latter are only a part of the whole, a part by means of which adjustments and execution are accomplished. A disturbance of these neurophysiologic processes will involve but not solely constitute psychical disturbance. We may say that affectivity, for instance, once organized may lead to sensation. Defining emotion as the motor expression of affectivity we may say that the emotive adaptation of the person will be conditioned by fixity of psychobiological reflexes and by variability of neuro-humoral equilibrium. The latter is concomitant with the colloidal state and metabolism of the neuron protoplasm. For proper maintenance of such equilibrium continuous impregnation of the nervous tissue with vital biologicals is necessary. Faulty impregnation will result in imbalance, in its extreme, being able to cause even abeyance of biological reflexes. Confirmatory to such a viewpoint would be the well-known experiments of Steinach concerning the so-called "erotization" of the brain of castrated animals by means of impregnation of the brain with gonadal hormone. What is true about the sex hormone is also true about other increts. For instance, in hyperthyroid conditions we have definite quickening of psychic processes while in the opposite case we find mental dullness and inertia.

We know also that the pituitary during pregnancy is hyperactive, considerable quantities of prolan, predominantly the luteinizing principle, are eliminated in the urine. According to the experiments of Zondek excessive formation of prolan may lead to hyperluteinization of the ovaries. On the other hand Steinach has shown (quoted by Maranon) that hyperluteinization virilizes the female. Again if we evaluate the situation during menstruation we see that in the premenstrual period there is hyperthyroidism, hyperpituitarism and hyperluteinism; at the same time we may observe that certain women are especially paranoid toward men during this time, which may be due to these changes which may cause or augment the affective constellation of certain women.

In our autopsied cases we found among other things considerable evidence of luteinization of the ovaries, diminution of formation of graafian follicules and fibrosis. These changes together with circulatory disturbance and cystic formation have obviously rendered the ovaries inferior; and we may conclude that the ovarian changes may have had considerable bearing upon the mental state of the patients.

The question arises, however, why in certain individuals such changes occur while in others, *i. e.*, in normal conditions, in which there is also abundance of prolan production and elimination in the urine during pregnancy, no damage is done. It must be stated that nothing is known about it. However, let us compare the situation with conditions at another phase of womanhood, namely involution. In the urine of involuting women we find the follicular ripening hormone; still no ripening of graafian follicules occurs. The only explanation I would have is that there is no "receptivity" for the hormone because the biological function has ceased. The ovaries at this period of life begin to atrophy. The stituation in certain cases of pregnancy can also be explained by the principle of "receptivity." The healthy state is not receptive to a larger quantity of prolan than necessary while in biologically inferior states the receptivity is pathological, as the situation is presumably in our cases. On the other hand, we know from therapeutic tests that there are conditions of apparently deficient receptivity and insufficient formation of corpus luteum which may lead to miscarriages. Treatment of such cases with corpus luteum prevents miscarriages.

Next we shall discuss certain aspects of thyroid activity. It is well known that in the majority of cases of pregnancy we have thyroid over-activity, although the opposite is also met with. We know the influence of the thyroid gland upon metabolism which does not require special comment. There is, however, an item of interest. Since the lipoid metabolism in pregnancy is greatly disturbed, we wish to call attention to a recent contribution by Duncan concerning the relationship of cholesterol metabolism to mental disorder. He brings out the fact that diminished blood cholesterol will produce increased neuronic excitability, while raised blood cholesterol will produce the opposite effect. He observes that in this relationship some parallel can be drawn with thyroid activity, since increased thyroid activity decreases blood cholesterol and causes increased neuronic excitability and vice versa. To this we should like to add that the cholesterol metabolism is dependent upon the function of the reticulo-endothel. With reference to the latter, Benda has shown that during the first half of pregnancy the capillary endothel is unimpaired. In the second half, the capillary permeability is increased. It reaches its maximum in eclampsia when the reticulo-endothel is greatly damaged. In normal conditions it subsides during the puerperal state.

Our findings with reference to the mode of onset of post-partum psychoses as related, as well as our other work on the reticulo-endothel convinced us of the importance of this system in the release of these psychoses. Moreover, the findings in the autopsied cases show considerable evidence of damage to the reticulo-endothel. It is this system that we regard as an outstanding factor in the defense of the individual and in the maintenance of equilibrium.

Other changes during pregnancy such as the increase of catabolic products in the blood, leucocytosis and shifting of pH to the acid side are in line with the views outlined above.

Conclusions.

In conclusion we wish to emphasize the following points:

There are certain differences in the clinical manifestations of post-partum schizophrenia and manic-depressive psychosis as compared with the same syndromes otherwise. At the onset there is a

somatic element present which often renders diagnosis difficult. After the respective syndromes crystallize themselves out there is no essential difference in the clinical reaction. The prognosis of post-partum schizophrenia is however better than in the usual forms, and this seems to be because catatonic reactions are predominant. No true hebephrenia or simple deterioration has as yet been observed by the writer.

Multiple factors are apparently at work in the release of these psychoses, among which we distinguish, (a) those belonging to evolution and integration of the total personality and primarily expressed in discord of integration or tendency to polarization of affect and impulse, and resulting in mental conflict; (b) those belonging to maintenance of balance and the defense system of the personality, manifested in neuro-endocrine and metabolic changes and reticulo-endothelal dysfunction; (c) precipitating and aggravating factors (pregnancy, childbirth and other experiences occurring during these times).

The fact that a psychosis may occur after the first childbirth only, or in succesive childbirths, or in multiparas who have had no complications at former parturitions, suggests that the combined action of the above-mentioned factors may cause states of crises of impulse life or affectivity or both. Referring for example to the sexual impulse, experimental endocrinology in conjunction with our findings as to ovarian changes, suggests that such changes may be instrumental in creating a state of sexual crisis, *i. e.,* transitory or permanent stages of accentuation of dormant affective or organic inter-sexuality or virilization of the female which may manifest itself in rejection of the marital and family situation (this ideation although conspicuous in post-partum psychoses is not specific since it is met in other mental states, suggesting similar conditions in those cases) or cause a crisis of total affectivity with the release of other conflicts of the individual.

Treatment: The acute case requires medical, dietary and nursing care. Excitement responds well to continuous bath treatment with subsequent application of occupational therapy. Treatment otherwise is largely symptomatic and when practicable psychotherapeutic. It is essential that the patient gain insight into her difficulties. It is also necessary that the family have insight into the condition. In certain cases, birth control must be considered with

due respect to the religious belief of the patient, and warning against abortions and miscarriages because the latter may produce the same complications. In view of the limitations of such therapy and with consideration of the findings in our cases we attempted whenever it appeared indicated and feasible to treat the patient also endocrinologically. We used theelin, sometimes in combination with antuitrin-S or thyroid. The dosage and proper administration are based upon recognition of the hormonal imbalance and upon clinical observation of the patient's reaction; thus treatment becomes individual and partly a therapeutic test. Treatment was given to milder cases of schizophrenia and depressed and mixed types of manic-depressive psychosis. In depression and apathy, theelin was combined with 1 grain of desiccated thyroid per day. This treatment ought not to be given in acute states of excitement, agitation or anxiety. In view of our limited experience we can draw no definite conclusions except to state that in certain cases it proved beneficial.

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SUICIDE AMONG CIVILIZED AND PRIMITIVE RACES.*

By GREGORY ZILBOORG, M. D.

I.

For the study of any phenomenon a definite emotional adjustment is required, without which no truly scientific observations and conclusions are possible. The chemist who reacts to the odor of chlorine or of various sulphur compounds with a severe sense of disgust is obviously unable to do chemical research with any degree of equanimity or detachment, because wittingly or unwittingly he is in a state of constant anxiety and tries to avoid stumbling upon a reaction in which various sulphur or chlorine gases may be given off. The physician cannot learn to perform a surgical operation unless he overcomes his fear of blood; the medical student will never be able to learn anatomy unless he makes at least a temporary peace with his fear of death. Exceptions are possible, but they occur only in rare instances. How many men today could become productive research workers in experimental physiology and bacteriology, if they, like Pasteur, suffered from a sustained fear of the syringe and the needle? The adjustment required is an *emotional* and not an intellectual one, for no amount of intellectual understanding can overcome fear. Pasteur had as fine an intellectual understanding of the rationality of operative experimental methods as any man could have, yet even he was unable to overcome his emotional tension, *i. e.*, neurotic fears.

An emotional adjustment is particularly necessary for the consideration of psychiatric problems. Our emotional attitude towards many psychopathological questions is so deep-seated, yet so elusive, that at times it escapes the most honest self-scrutiny with the result that the clarity of our scientific understanding is obscured. Therefore any phenomenon the nature of which displays the frailty of human reason must be studied with particular caution. All psychopathological phenomena display this frailty of human reason.

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As a matter of fact, they seem to be the phenomena which demonstrate *par excellence* little else than the frailty of what is called mind. The organicist, to whom all mental phenomena are but an expression of somatic reactions, takes it for granted, of course, that the human mind is but a delicate cobweb, the threads of which are impaired or destroyed by the smallest quantities of hormones, drugs, physiological waste-products, or minute anatomical accidents. But even the pan-psychologist who asserts the supremacy of the mind over everything else views the frailty of man's reasoning power as something fundamental in that he endeavors to demonstrate that emotions, instinctual drives, and various primitive instinctual constellations are *the* forces which affect our reason and not *vice versa*. In other words, while we profess a great admiration for and pride in our reason, we actually—although indirectly—admit that it is one of the weakest tools in the armamentarium of man's endowments. One must approach such a phenomenon as suicide with the greatest of caution, for any act that opposes the instinct of life is bound to arouse in us a set of reactions which interfere with a clear and purely rational understanding of the phenomenon itself.

These considerations are set forth here not only as a warning to those who are invited to examine some of the questions involved in the act of suicide, but also—if not particularly—as an advance apology for the possible errors in thinking which may be found in my conception of the problem. For I am fully aware of the weaknesses of human reasoning, and no matter how sufficient one may consider one's emotional adjustment to such a puzzling and grave expression of human behavior as suicide, one can never be certain that this adjustment is really complete enough to overcome either one's biological bias in favor of life or one's sombre propensity towards death.

2.

Even a cursory review of the traditional, popular attitude towards suicide at once brings out the confusing contradictions with which the average man regards the subject. Thus, we frequently hear either that it takes great courage to commit suicide or that only a coward would kill himself. It is obvious that both viewpoints are emotional and not rational. He who senses within himself (whether

he is aware of it or not) the constant flow of life—who is biologically aware of all the forces of his individuality surging in the direction of life—*cannot* conceive of the voluntary act of self-destruction as an easy or natural thing, and he imagines it as something that requires unusual moral fibre; hence he concludes that the act of suicide demands great courage. If to this attitude we add a further sentimentalization of the problem and put the question on a purely moral basis, we will then be unable to understand what Achille-Delmas [1] calls " the perversion of the instinct of self-preservation," and the whole act will be rejected as a cowardly affair. In other words: one must live, it is one's duty to live, and hence one has no right to shirk one's duty by fostering one's own death. As is almost always the case with morality that ignores science, what is a natural phenomenon is soon elevated to the height of duty—hence the reasoning that once man lives, his very living becomes an obligation. From here there is but a step to the medieval doctrine of free will which insists that man, no matter how subject to the laws of nature, can always choose freely between good and evil, life and death, health and disease (mental). It is obvious, of course, that the theory of free will, whether overtly propounded or covertly accepted, is a double-edged tool: This same concept of free will might lead to a complete justification of suicide, as it did in the case of the English poet, John Donne, who published in 1644 his *Biathanatos: A declaration of that paradoxe or thesis that selfe-homicide is not so naturally a sinne, that it may never be otherwise.* The survival of this emotional evaluation of the problem on the basis of morality and the philosophy of free will can today be easily detected in divers sects—like Christian Science—or even in traditional, academic psychology. The latter, for instance, is inclined to deny that man may naturally will to kill himself, and it labels every attempt at suicide as something purely pathological, " temporarily insane," or, as we are more prone to say today, psychotic. The same manner of avoiding rather than approaching the problem may be seen in the popular point of view which has also crept into our quasi-scientific, psychological writings and which has never been confirmed or verified—that the rate of suicide increases

[1] Achille-Delmas, F.: Psychologie Pathologique du Suicide. Paris, Felix Alçan, 1932.

with the development of civilization, with economic depressions, and with similar phenomena of a sociological order. Observations such as these also spring from our emotional unwillingness to face an unpleasant fact boldly and hence also the desire to ascribe it to causes external to the individual. Yet a glance at our vital statistics would easily disabuse us as regards the fundamental validity of the contention that economic depressions cause an increase in suicides. In 1912 the number of suicides in the United States was 16.0 per 100,000 population. This rate fluctuated only slightly until the outbreak of the war, when it began to drop and reached its lowest point in 1920, when it was 10.2 per 100,000 population. After 1920 it began to rise, reaching 16.8 in 1931—almost the same level as in 1915. The vital statistics compiled by the Department of Health of Greater New York since 1898 also show a comparatively small fluctuation of the rate per 100,000 population (approximately between 22 and 16), apparently regardless of the economic status of the country. It should be added, however, that although quoted here, statistical data on suicide as they are compiled today deserve little if any credence; it has been repeatedly pointed out by scientific students [2] of the problem that suicide cannot be subject to statistical evaluation, since all too many suicides are not reported as such. Those who kill themselves through automobile accidents are almost never recorded as suicides; those who sustain serious injuries during an attempt to commit suicide and die weeks or months later of these injuries or of intercurrent infections are never registered as suicides; a great many genuine suicides are concealed by families; and suicidal attempts, no matter how serious, never find their way into the tables of vital statistics. It is obvious that under these circumstances the statistical data available cover the smallest and probably the least representative number of suicides; one is justified, therefore, in discarding them as nearly useless in a scientific evaluation of the problem.

To return now to the subject of external causes of suicide: Many a serious student is inclined to follow this pattern rather than the fundamental principle of the natural sciences when he looks for what is frequently called constitutional factors as determinants of

[2] Durkheim, Emile: Le Suicide. Paris, 1897. *Cf.* also Achille-Delmas, *op. cit.*

suicide. Elsewhere [3] I had the opportunity to point out that one does not inherit complexities, but elements; that to elevate to the level of a hereditary characteristic every complex phenomenon of human behavior is equivalent to returning to the psychology of *virtutes* or *faculties,* which had for centuries dubbed every phenomenon which it failed to understand as a special, irreducible faculty of the soul. Obviously, most of these attitudes towards the problem of suicide, whether couched in terms of philosophy, ethics, biology, or psychology, bear the earmarks of man's emotional attitude towards the problem and not of that detached scientific curiosity which is always combined with as impartial a scientific doubt.

3.

Of all the manifestations of this traditional, almost instinctive bias, two are of particular interest to the psychiatrist: I have in mind *first,* the misconception that the rate of suicide increases with the development of our civilization, that in some unknown way civilization fosters suicidal tendencies within us, and, *second,* that suicide is a result of some psychopathological process, that it is intimately connected with some form of mental disease. In other words, it is commonly believed that our civilized human community generates some vague but specific sociological forces which in turn generate suicidal behavior, and also that our civilization breeds psychopathies and that psychopathies breed suicide. It would be difficult, if not impossible, to subject these beliefs to a detailed and critical analysis because of insufficient factual data; there exists, however, some pertinent information which is worth citing. Since we are hardly able to offer any generally acceptable definition or standards for comparison of the various levels of the blessed state called civilization, we are naturally forced to resort to broad comparisons. These are, I believe, sufficiently telling. Let us compare the primitive races with our own in order to avoid any doubt we may have that we are really dealing with a civilization lower than ours, or with a considerable lack of it. Unfortunately, there have been few if any anthropologists and no psychiatrists to my knowledge who have specifically studied the problem of suicide among

[3] Zilboorg, Gregory: The Problem of Constitution in Psychopathology. The Psychoanalytic Quarterly, Vol. III, pp. 339-362, 1934.

primitive peoples. What information we possess on the subject is largely derived from the more or less incidental remarks of interested travelers, missionaries and anthropologists, who mention the problem merely because they happened to stumble on it, so to speak. We have an exception, however, in Steinmetz, one of the most scholarly of our ethnologists, who devoted his special attention to the subject,[4] and after careful study stated: "It seems probable from the data I have been able to collect that there is a greater propensity to suicide among savage than among civilized peoples." To this conclusion one may add that no civilized race of today shows any tendency to deliberate mass suicide, while many primitive races have, at times, demonstrated such a drive towards mass self-destruction that it is totally beyond the comprehension of the civilized individual of today. We may recall in this connection the numerous voluntary deaths of slaves, women, and sometimes male relatives following the loss of their chieftain—a custom spread among primitive races throughout the world which, as far as women are concerned, is still extant here and there in India despite the strenuous efforts of the Imperial Government to eradicate it. We may also recall the many suicides—they reached almost epidemic proportions at times—among various tribes of North American Indians during epidemics of smallpox, or the tragic history of the Spanish conquest of the West Indies. "The history of the Indians of the West Indies following the discovery of America," says Wisse,[5] "is limited primarily to the history of their eradication by the Spaniards. However, as a result of the harsh and cruel treatment at the hands of their oppressors the Indians themselves participated not only passively but often actively in this process of eradication. When the cruelty of the Spaniards became intolerable the natives rid themselves of their lives by mass suicide." These mass suicides are an established historical fact; Friederici states that "under pressure (of Spanish cruelty) whole tribes committed suicide; this fact is proven not only by the testimony of Las Casas, the accuracy of whose statements one might choose to doubt, but also by the testimony of Las Casas' bitter enemy, the historian

[4] Steinmetz, S. R.: Suicide Among Primitive People. American Anthropologist, 1894.

[5] Wisse, J.: Selbstmord und Todesfurcht bei den Naturvölkern. Zutphen, W. J. Thieme und Cie., 1933. p. 207.

Oviedo y Valdes, whose name the bishop never mentions without taking the side of the conquistadores and/or without recriminations against the Indians." [6] These desperate Indians employed many methods and exercised great inventiveness in the business of self-destruction; thus, when caught and imprisoned in the hold of a Spanish ship, they "strangled themselves with the ropes they succeeded in obtaining—this in a squatting or kneeling position, since the room, too small to begin with, was still further reduced in height by the heavy ballast of stones and made regular hanging impossible." [7] Mass suicide was practiced in the Bahamas and according to Perschel [8] among the women of the Antilles: "The women refused to bear children and forwent any carnal pleasures by means of well-known vegetable poisons; but not only were future generations thus deprived of life—the contemporaries themselves cut short their own existence by taking the ever fatal juice of the Manioca plant or by inhaling the fumes of other poisonous plants they were in the habit of burning for the purpose;" [9] they also partook of the poison from the Yuca plant. It is authentically reported that when 40 natives from the Gulf of Mexico were brought by the Spaniards to work in a mine of Emperor Charles V, 39 of them preferred to starve themselves to death. Girolamo Benzoni reported that not less than four thousand men and innumerable women and children died by jumping from high places or by mutual killing of one another.[10] He also states that out of two million original inhabitants of Haiti, hardly 150 individuals were left as a result of many suicides and other deaths.

Some will remember how, in our own day, an attempt at mass suicide through starvation by a group of 1200 miners in Hungary [11] was widely featured in the press throughout the country. It was considered, as it undoubtedly was, a most unusual manifestation of

[6] Friederici, G.: Der Charakter der Entdeck. u. Erober. Amerikas durch die Europäer, I, (1925), p. 299. Also quoted by Wisse, J.: *Op cit.*, p. 207.

[7] Wisse, J.: *Op cit.*, p. 208. Quoting Stoll, Otto: "Suggestion and Hypotism in Race Psychology."

[8] Perschel, O.: Geschichte des Zeitalters der Entdeckungen. 1877. pp. 431-432.

[9] Wisse, J.: *Op. cit.*, p. 208.

[10] Benzoni, Girolamo: The History of the New World. Edited by Rear-Admiral W. H. Smyth, London, 1857. p. 111. Also Wisse, J.: *Op. cit.*, p. 209.

[11] The Associated Press, October 12-17, 1934.

mass protest through a solidarity in death, reminiscent of the mass suicides committed by the Indian Islanders of the Western Hemisphere; but even the similarity of this suicidal threat of a group of Hungarian miners to the more successful attempts of their primitive Indian colleagues of the sixteenth century can hardly lead us to believe that suicide is more or as prevalent in modern civilization.

Evidently the pride we experience in our own civilization is always accompanied by a contrary emotion. We love the day we live in, but we constantly demonstrate an inferential rejection of it when we idealize "the good old days." Similarly, we are always very proud of the achievements of civilized mankind and seldom miss an opportunity to share in their credit, but at the same time we reject this very civilization by imputing to it the malicious force of breeding suicide, mental disease, and other phenomena of negative value. The question as to the origin of this ambivalence of man towards something he himself creates is not in order here, but the well-known emotional (and not rational) roots of ambivalence leave no doubt as to the affective origin of the traditional belief which cannot successfully stand the test of scientific inquiry. Further investigation of this very interesting psycho-sociological aspect of suicide must be left to the future; it was mentioned here merely to illustrate the contradiction between fact and common belief which has crept into our quasi-scientific thinking and assumed the guise of a postulate. We may add that while statistical data are naturally not available, it is evident that even suicide consciously motivated by financial losses is not the monopoly of our monetary-industrial age, since it is known that among the many conscious motivations of suicide in the old Navajo tribes and among Eskimos poverty was not a minor, nor an infrequent, one. Clinical psychiatry and psychopathology, finding more and more points of contact with sociology, may not, of course, overlook the sociological misconception when seeking for a proper scientific approach to the problem of suicide.

4.

Let us now turn to another current misconception—that suicide is caused by mental disease. To avoid digressing too far afield, let us limit ourselves to a brief summary of some of the facts which bear on the subject.

Towards the close of the past century the literature on suicide reached gigantic proportions, and by the end of the first quarter of our present century the bibliography on suicide, as compiled by Rost,[12] occupied a large *in quarto* volume of almost 400 pages. Philosophers (Tissot), sociologists (Durkheim), and psychiatrists (Falret, Brierre de Boismont) have written scholarly and voluminous treatises on the subject, investigating and in some cases putting to a statistical test the contention that suicide and so-called insanity are etiologically related. While no unanimous conclusion was reached, it was clear that although many psychotics commit suicide, suicide is not necessarily connected with or related to psychotic conditions. Durkheim[13] collected a number of very interesting data and pointed out quite convincingly that if it were true that suicide is etiologically connected with psychoses, we should then expect a race yielding a relatively greater number of psychoses also to yield a geater number of suicides. Yet he found the contrary to be true: while the Jews in Prussia, for instance, yielded a greater percentage of mentally sick among their co-religionaries, they fell into the lowest brackets of the statistical tables on suicide; the Prussians, on the other hand, yielding relatively fewer mentally sick, occupied the higher brackets of the same tables. Studying other racial and geographical units of Europe, Durkheim arrived at the same conclusion for each respectively.

A far more intimate relationship was found to exist between suicide and murder. The Italian school of sociologists and Durkheim were considerably impressed with what appears to be an inverse ratio in the occurrence of suicide and homicide. Thus, Catholic countries (Spain, Italy and Ireland) as compared with Protestant, usually show a relatively low rate of suicide and a rather high rate of capital crime: Sicily, for instance, shows a high rate of homicide and a correspondingly lower rate of suicide, while the northern provinces of Italy tend towards more suicides and fewer homicides per given unit of population. The same is true of various departments of continental France; the same relationship between capital crime and self-destruction is seen to exist when we compare

[12] Rost, Hans: Bibliographie des Selbstmords. Augsburg, Haas und Grabherr, 1927.

[13] Durkheim, Emile: *Op. cit.*

the Island of Corsica where murder prevails over suicide, with the French mainland. Evidently the whole problem of suicide is much more complex than traditional psychopathology is wont to think, and transcends in its scope the field of clinical psychiatry proper.

5.

If we turn now to purely clinical observations, we find that the old point of view, according to which depressive psychoses have more or less monopolized the clinical right to commit suicide, requires substantial revision. In an investigation of the clinical diagnostic types of suicide,[14] I endeavored to review a portion of the material studied in Bloomingdale Hospital and later in private practice. Two conclusions were reached with what appears to me a reasonable amount of clinical, empirical justification: *First,* it is not only depressions who commit suicide—hysterias, compulsion neuroses, obsessional neuroses, and some types of schizophrenia all contribute to the toll of self-inflicted death; and, *second,* a careful psychological study of a number of suicidal individuals and katamnestic studies of patients who had succeeded in killing themselves led to the formulation of certain specific diagnostic criteria which permit one both to differentiate various types and to utilize these for prognostic evaluation. It is not necessary to elaborate here on the details of the findings,[15] but a few of the specific conclusions will be cited briefly. It has been found, for instance, that the death of a parent or a sibling during the formative periods of the future suicide (between the ages of four and six, and at puberty) produces a definite predisposition towards suicidal depressions, while compulsion neurotics are apt to commit suicide without warning in a moment of severe psychopathic spite. This spiteful type of suicide is, incidentally, also characteristic of children and adolescents—it is well known that adolescents may at times walk off and kill themselves because "mother forbade them to go to a party" or for some other reason which would seem as trifling. A study of the deeper layers of the unconscious of suicidal patients failed, however, to offer any specific clue to the nature of the suicidal

[14] Zilboorg, Gregory: Differential Diagnostic Types of Suicide. Archives of Neurology and Psychiatry, Vol. 35, pp. 270-291, 1936.

[15] *Ibid.,* for a discussion of these details.

impulse. One may add that while making such a study one is impressed by the universality of the "death drive," although its intensity varies, of course, from the common "I wish I were dead" to the almost elemental impulse to die. Yet despite the universality of this drive and the multiplicity of its gradations there always appears to be something specific about the method the individual chooses for his lethal exodus. I knew, for instance, a patient who made several attempts to commit suicide. For a long time she carried a small loaded revolver in her purse, frequently playing with the idea of shooting herself, but never attempting to do so. Yet she made at least three serious attempts to poison herself by taking immense doses of luminal, and once remained unconscious for almost 72 hours. Another patient chose self-mutilation that led at least on two occasions to an almost fatal loss of blood, despite the fact that many other means for self-destruction were frequently at her disposal. Still another patient, who occasionally thought of taking a poison to which she had easy access, preferred the skyscraper method. One is warranted in concluding that various individuals have specific, for the most part unconscious, psychological reactions which determine the method of suicide, and that this method is, as a rule, of a symbolic nature. While all suicidal methods serve to fulfill the fantasy or gratify the need of entering the state of nothingness, the method itself has a special meaning to the individual. This meaning may not always be clear, but its elemental force and high specialization, as it were, suggests that we are dealing with something more than mere personal symbols as was true in the case of the patient who preferred luminal. Whenever this patient was about to make a serious attempt to end her life, the image of her father would arise in her mind and she would fantasy herself falling gradually asleep. Prolonged and rather deep psychoanalysis disclosed the unique circumstance that the girl had two operations before she was five—one, a tonsillectomy and another, the repair of her nasal septum—and that later, when about ten, she had a third—again a tonsillectomy, since the first proved a failure. In all three operations ether was administered, and in all three it was impossible to induce the child to take the anesthetic until, cradled in her father's arms, the anesthetic could be successfully administered while the child fell gradually asleep on the father's

lap. Evidently these memories, at one time completely forgotten, played a serious rôle in the patient's method of attempting suicide. If we search deep enough and long enough we invariably find in every case a number of such "accidental causes," as the French psychiatrists of a century ago used to say, but the determinants responsible for the universality of the death drive independent of the clinical picture, and for the individual specificity of the method chosen for the act of self-destruction, continue to remain an unsolved puzzle. Clinical psychopathology and sociology—both theoretical and statistical—have failed so far to provide us with an answer; pure reason and logic succeed at times in constructing an answer but, as we have said, it is an answer built on an *emotional* foundation. Apparently biology was never concerned with the specific question of suicide, and therefore it throws little light on the subject, although one cannot easily rid one's self of the suspicion that suicide, *i. e.,* an active turning away from life culminating in death, is not unknown among animals. The dog who, losing his master, goes off by himself, refuses to eat, and is apparently ready to starve himself to death does seem to have something in common with the Eskimo of the seventeenth century who, despondent over the loss of a close relative or over an illness, wandered off alone to build himself a small hut where he could lie down and slowly die of starvation.

The vague suggestion that the suicidal impulse may represent, in part at least, a primordial biological force is neither new nor at first very promising. It is, however, prompted by something more than the simple human propensity towards speculation and might offer us a psychological lead in the right direction. Let us examine a few typical examples: (1) It is traditionally believed that a scorpion when sufficiently irritated pierces himself with his telson; (2) Cervantes, in one of his *Exemplary Novels,* presents a dialogue between two dogs, Scipio and Berganza, in which the former says, "Thus you will have seen (if it has ever come under your notice) that, on the alabaster tombs, on which are represented the figures of those interred in them, when they are husband and wife, a figure of a dog placed between the pair at their feet, in token that in life their affection and fidelity to each other was inviolable;" and to this Berganza replies, in part, "I know that there have been grateful dogs who have cast themselves into the same grave with the

bodies of their deceased masters; others have stood over the graves in which their lords were buried without quitting them or taking food till they died";[16] and (3) Aristotle, in his *History of Animals IX, 47,* states—apparently as a fact—that a certain colt, after refusing several times to serve a particular mare, finally served her, then discovered that it was his own mother and cast himself over a high precipice.

Let us assume that these reports are pure fantasies as they apparently are—even as such they are of great psychological value in so far as they represent, as all fantasies do, the more or less disguised motivation of man conveniently projected into the animal kingdom. These projections deal with anger, spite, and the unwillingness to submit to an outside force (the scorpion); love, fidelity and devotion to the dead (the dog); and incest (the colt). These three motivations present a striking similarity to those found among neuroses and psychoses, among children, and among primitive peoples. The behavior symbolized by our scorpion is illustrated by the suicides of the primitive people at the time of the Spanish conquest and by the self-destruction of the Indians when the white race invaded the continent of North America; the voluntary death of the dogs evidently symbolizes what appears to be the most ancient form of passive suicide, which was first prevalent among women and slaves at the death of their masters; the Aristotelian colt is highly reminiscent of Malinowski's observations concerning the Trobriand Islanders among whom (as is also the case among many other races) suicide is frequently the direct result of an incestuous transgression.[17]

There is one more motivation which should be mentioned for the sake of greater completeness. Though apparently not a primary one, it is a socialized (and therefore less primitive) modification of the scorpion's reaction which, for want of a better term, we may dub the hara-kiri type. It is well known that the offended Japanese commits hara-kiri at the door-step of his offender who in

[16] Cervantes Saavedra, Miguel de: *Exemplary Novels,* trans. by Walter K. Kelly. London, Bohn, 1855. p. 125.

[17] Malinowski, Bronislaw: Crime and Custom in Savage Society, London, Kegan Paul, 1926. Also his Sex and Repression in Savage Society. London, Trench, Trübner & Co., 1927.

turn is subjected by the community to social disfavor. It would appear that this form of suicide is a very ancient one. The Papuan commits suicide at the least possible provocation; even a remark about his appearance, if he interprets it as a derogatory one, immediately leads him to kill himself. The hara-kiri type of self-destruction, however, has an additional feature: he who is offended does not try to avenge himself by directly punishing the offender, but in destroying himself he delegates to the community the rôle of the avenger. Suicide here serves as a substitute for murder or for any milder penalty the right to which is relegated to society. This type of complex socialization of the impulse to kill is met with among a number of primitive races. Malinowski [18] relates the case of a young man, Kima'i, who had a secret love affair with his cousin. Some of the tribesmen suspected Kima'i of the transgression, but preferred to close their eyes to the situation. However, when a young man from the neighborhood boldly accused Kima'i of having an affair with the girl, Kima'i put on his ceremonial clothes, announced to his tribe the reason for the forthcoming step, and in the presence of the entire population of the village climbed up a palm tree, named his offender, and jumped from the tree to his death. Immediately, even before the funeral ceremonies for Kima'i were completed, a battle ensued between the population of Kima'i's village and that of his offender. It appears reasonable to assume that in this case, as in the case of the ancient hara-kiri, suicide is not the primary and direct result of the offense; it is rather a socialized adaptation of a primary form of suicide out of spite for revenge. But since this type of suicide belongs to a more complex form of culture—is, therefore, not a primary one—we shall not dwell longer on it here.

Yet another form of the seemingly spontaneous and elemental impulse to die is found among alcoholics and drug addicts who, while under the strong influence of alcohol or drugs, suddenly lay their hands on themselves and die. A parallel to this form of suicide, if not its prototype, is found among many primitive races. To cite but one example: The Malalis in Brazil [19] are given to fits

[18] *Ibid.*

[19] Wisse, J.: *Op. cit.* Quoting from De St. Hilaire's Voyage dans l'interieur du Brésil, 1830.

of great indulgence during which they revel in orgies of drinking and sexual pleasures, and then suddenly they bring these to an end by hanging themselves.

These cursory parallels drawn from the history of primitive or quasi-primitive races lead to one conclusion: suicide is evidently as old as the human race, it is probably as old as murder and almost as old as natural death. The lower the cultural niveau of the race, the more deep-seated the suicidal impulse appears, and as a result the folk-lore of the majority of primitive races idealizes rather than condemns suicide. The primitive man is not afraid of death, although he is frequently afraid of the spirits of the departed, and he views suicide not only as a natural but as a desirable end to his existence on earth. The universal rejection of suicide as something sinful and therefore forbidden dates only from the fifth century of our era, at which time St. Augustine condemned voluntary, self-imposed death. The impulse to destroy one's self appears to be so deep-rooted and serenely matter-of-fact in primitive man that when the Christian civilization made contact with the "savage," many a paradoxical clash of psychologies occurred. Rasmussen relates an instructive incident in his *Iglulik Eskimo*.[20] An old Eskimo, apparently hopelessly ill, asked his wife to help him to die. Since they both belonged to the local Catholic mission, suicide was forbidden; on the other hand, Eskimo tradition asserted its reasonable demand to die, either by means of suicide or a self-requested death at the hand of another person.[21] The old Eskimo soon found a good way out of the dilemma. He proceeded to hang himself, but to keep his account straight with the priest he asked his wife to cut the rope which bound his neck just before he should expire. The loyal wife fulfilled the request and then said to Rasmussen that she had "hurried death up a little, as it is apt to be so very slow at times."[22] This serenity and simplicity, so foreign to our modern man where such issues are concerned, was fully supported by the

[20] Rasmussen, K.: Culture of the Iglulik Eskimo. Rep. of the 5th Thule Exp., Vol. VII, No. 1 (1929).

[21] This is almost a universal custom among primitive races; the aged request their children to kill them and the latter (usually the son) are glad and proud to perform the service, considering it an honor and an act of charity. *Cf.* Koty, John: Die Behandlung der Alten und Kranken bei den Naturvölkern. Stuttgart, Hirschfeld, 1934.

[22] Rasmussen, K.: *Op. cit.*, p. 97.

idealization of the act of suicide. In Scandinavian folk-lore no one is permitted to enter Walhala who did not die in battle or from suicide. The Iglulik Eskimo believes that death by violence has a purifying effect and those who die in such manner enter a hereafter called the *Land of Day,* while those who die a natural death must reside in the *Narrow Land.* The very names denote the preferences of the race. The inhabitants of the Marquesas Islands place all those who die a violent death in a beautiful paradise, while those who die a natural death are relegated to the dark and horrible lower depth *Hawaiki.*

6.

Whatever the philosophical and speculative psychological implications of these facts may be, one is justified in assuming that the suicidal impulse of our contemporaries—the individualized psychology of each individual case of suicide notwithstanding—must be connected by some invisible roots with the whole history of suicide as a phenomenon of man's natural behavior. The man of today, as far as suicide is concerned, is deficient, indeed, as compared with his forefathers who possessed a suicidal ideology, mythology, and an unsurpassed technique. The cocoa palm and the high rocks were used more frequently and efficiently in the service of this ideology than we use our skyscrapers today; self-mutilation, poison, hanging (mostly strangulation), self-requested annihilation (the forerunner of our modern suicide-pact) were all used before the dawn of our modern civilization and modern psychopathology. This being the case, it would seem that to solve the puzzle of suicide would require a revaluation of our present-day method employed in clinical psychopathology in the direction of comparative and genetic psychology; it would seem that a study of the deeper, highly individualized psychology of individual cases of suicide, unless they are supplemented by the study of the deeper psychology of primitive suicide, will always leave the fundamental problem totally unsolved. Knowledge of this deeper primitive psychology is still lacking and the purpose of this communication is, *first,* to point out at least some of the reasons for the need of such knowledge, and, *second,* to offer briefly an hypothesis of what appears to be the plausible history or origin of suicide. However, before this hypothesis is formulated it should be emphasized that individual clinical studies cannot

be over-estimated. The complexity of individual reactions does not permit us to differentiate the purely individual and ontogenetic from the philogenetic unless the ontogeny is studied fully. Just as dreams and various infantile reactions cannot be understood without a full comprehension of the specifically personal in them, so the problem of suicide is bound to remain unsolved if the personal determining factors of it are overlooked; but, as in the case of dreams and our unconscious life in general, the total reaction of the individual, the pattern of his affects, and his unconscious imagery—all converging into motor expression called suicidal behavior—follow not the rational, logical pathway but rather a primitive, affective paralogical one. To put it in other words, every voluntary act of suicide, despite its external coat of deliberateness, in reality presents a sort of complicated reflex motor response, the center of the reflex arc being imbedded deep in our racial past in a matrix of intense primitive affects. This is the reason why a five year clinical study of approximately 165 cases of suicide—about 14 of which have been deeply analyzed with satisfactory therapeutic and scientific results—led me to turn to ethnological material. Unfortunately, as has been pointed out at the beginning of this paper, the very extensive literature on the subject either fails to approach the problem from the psychological point of view, or it presents a rather amateurish type of psychology devoid of scientific method and of clinical knowledge. The traveler, no matter how intelligent, and the ethnologist, no matter how scientific, lack the necessary background for a study which involves material that the psychiatrist alone is able to furnish. Unless and until the psychiatrist and the psychoanalyst go directly into the field to observe and to study the primitive material, this deficiency will continue to exist, and whatever material we may stumble upon will offer little more than an opportunity for conjecture. The excellent compilations of Wisse and Koty, covering the observations of about four hundred primitive peoples from all parts of the earth, remain after all mere compilations. In a large measure, however, these two sources have formed the basis for what follows.

7.

I shall have no opportunity here to formulate even briefly any concept of the deeper psychology of suicide—this must of necessity

be left to some future communication. The following discussion will be limited to descriptive, purely phenomenological impressions.

As has already been mentioned, the most persistent and therefore the most dangerous type of suicidal individual met with clinically is the one who gives evidence of unconscious identification with a dead person. The impulse to die is not based on the *actual* loss of a relative or friend (father, mother, or their psychological surrogates) but on the *fantasied* loss. Even as was the primitive slave or the primitive woman, the individual seems to be unconsciously impelled to join his dear dead while the body of the deceased remains uninterred, and in the *fantasied* death the body is ever-present, so to speak. It would seem that joining one's dead is the universal form of primitive mourning whose original meaning is fully preserved among civilized races although it may assume a different guise. Thus, throughout the period of mourning, the civilized man dresses in black (this is true at least of the white races), refrains from attending the theatre or amusing himself in other ways, and during the first stage of mourning, feels emotionally incapable of visiting people, working, or otherwise indulging in any social activity. Briefly, the civilized individual *withdraws* from life, he eliminates himself from normal human existence on earth even as the dead person is eliminated, he enshrouds himself in black as if to cover himself so as not to admit the light of day in symbol of the dead who is excluded from sunlight by the confines of his grave. The *actively* suicidal individual also appears to be in mourning, but his is not a sublimated gratification of the need to identify himself with the dead; instead, he reverts to the primitive pattern of mourning. A regression to the primitive impulses invades his motor system so that in *acting out* his *neurotic mourning* he actually joins the fantasied dead by killing himself, as the primitive man did at the open grave of his master.

However, while this form of suicide appears clinically to be the most primitive, a perusal of the ethnological literature leads one to believe that this form of self-destruction is a later and more complex evolution from a more primitive and simple attitude towards one's own death. It appears that originally man accepted life on his own terms: a sickness, any sort of discomfort, any strong affective tension, made him feel that life had violated its contract with him, so to speak, and he then would leave his unfaithful partner. The

suicide of the red Indians prompted by an epidemic of smallpox may serve again as an illustration. In this case, even if the red man recovered from his illness he would frequently resort to suicide when he noticed that the sickness had left in its wake a disfigured face or body. Affective tension—like rage—led to the same outcome. Neuhauss reports that if a man from New Guinea beats his wife she hangs herself, whereupon he, the husband, kills himself, too.[23] We learn from the same source of a couple from Tami whose quarrel over a cigarette butt culminated in their respective suicides. But still more remarkable is what appears to be the earliest or at any rate the simplest form of suicide which is more than reminiscent of the simplicity with which the confrère of Cervantes' Berganza died. Holmes,[24] who spent a quarter of a century among the Iji and Naman tribes of the Gulf of Papua, states: "Death and all that belongs to it is full of significance to these people. They are not afraid of it *per se,* they have no dread of its approach; in fact, given provocative reasons, they welcome death. I have seen several young men and women lie down and die as any one lies down and sleeps. It was not suicide by poison and they committed no violent act nor did any one else; they just died." Detzner[25] states that he saw hundreds of cases of just such peaceful, voluntary deaths. We are justified, I think, in considering these as the earliest forms of suicide, and in regarding the passivity of the whole process as the distinctive characteristic of these earliest forms: The individual simply lies down and quietly waits for death to come. This passivity is found in the Eskimo who retires to a hut to wait for death, as well as in the aged among primitive peoples who, when they become old and feeble, ask to be killed.

Apparently the hedonistic unwillingness on the part of primitive man to accept sickness, old age, or too many painful emotions not only made it possible for him to accept death willingly, even to seek it, but it also gradually led him to project his hedonistic ideal into a hereafter where life is eternal and forever devoid of any discomfort. Evidently Paradise was thus created by mankind not through the birth of Adam and Eve but through the acceptance of

[23] Neuhauss, R.: Deutsche Neu-Guinea, 1911. Vol. I, p. 114.
[24] Holmes, J. H.: In Primitive New Guinea, 1924. p. 227.
[25] Detzner, H.: Vier Jahre unter Kannibalen, 1920.

death by primitive man who preferred voluntary death rather than relinquish his ideal of what life should be. The primitive races cling tenaciously to their belief in the after-life; psychologically death does not exist as far as they are concerned. One suspects that this absolute faith in the immortality of man was one of the most forceful determinants of the institution of human sacrifice. I have in mind the victim's point of view, for wherever the custom exists no slave, no woman, ever refuses to die to join his or her master, but seems to consider it a duty, an unusual honor, and strives to attain this end with a persistence no admonition, no amount of restraint on the part of the missionaries could destroy. In point of fact, the Micronesian woman prefers to join her husband in his death than to remain behind; she knows her husband will provide for her in the hereafter and if she continues to serve him in death she will be relieved of the concern of finding herself a second man equal to the first.

It must be noted that joining the dead was originally also carried out passively in the form of being killed. Human sacrifice at the grave of the master is a good illustration of passive murder, and in so far as the slaves and women were always willing to die in the manner offered we might also call it passive suicide. On many islands of Micronesia and Melanesia the women do not kill themselves after the death of their husbands, but ask to be killed by one of their relatives—a request which is always granted. Among some tribes tradition requires that this murder be committed while the victim is asleep, and it appears that many women, in order to be able to sleep, go into the fields and collect certain herbs that have a hypnotic effect. Since the method of choice for the murder is almost always strangulation, we may think of strangulation as being the earlier, and poison, culturally and psychologically speaking, the later form of suicide. Strangulation or hanging, *i. e.,* obstructing one's breath, seems to be the most ancient form of suicide, strangulation presenting the earliest passive and hanging the later more active form. Both types are met with clinically still today. It would be interesting to compare statistically the frequency with which various methods of suicide are used. At present one is under the impression that hanging is the most ancient and still the most frequent one. The Eskimo of Hudson Bay, for instance, when old and

no more able to work, asks his children to strangle him; the Negro of Sudan stops motionless and holds his breath until death comes. The breath—always identified with the soul, spirit, pneuma, pranná in ancient India (meaning both "breath" and "I")—seems to be the chief point of attack. In Sudan this method is called "holding one's breath." Man holds his breath in order to give it up. This is characteristic of man's essential ambivalence toward life and death. The same ambivalence holds true in the two-fold feeling of allure and fear which the primitive man—and for that matter, the civilized man—experiences when he faces the problem of death. This being the case it is only natural to find that the impulse to join one's beloved dead, the unconscious or conscious cult of suicide, should arouse even in primitive man a double attitude: He idealizes suicide and he also fears it. This is reflected in the belief of the Iroquois Indians, for instance, which Wisse cites as reported by Lahontan: If, when a husband or a wife dies, the survivor dreams twice of the dead person within six months after the latter's death, he then kills himself by taking poison; if, however, the survivor dreams but once of his dead mate, he does not commit suicide since the first dream is supposed to mean merely that the spirit of dreams was not certain whether the dead person was dissatisfied with the hereafter or not.[26] In New Guinea, for example, the belief is prevalent that "the spirits of suicides will lure friends into a like death," [27] and that "the spirit of a man who hangs himself carries around his neck a rope, and this he will throw to friends to be used for the same purpose." [28] which is apparently a projection of one's own wishes through identification in death.

Mention should also be made of another method of suicide which also points to a psychological identification with the dead buried in the earth, *i. e.*, eating earth for suicidal purposes. The Eskimos, the Kirgis tribes and other primitive races resorted to this method.

On the basis of the above, we might conclude that the most frequent suicidal drive which we find clinically today in various psychopathological conditions—that is, the primitive identification with the dead—has its own history which might be conceived as follows:

[26] Wisse, J.: *Op. cit.*, p. 168.
[27] *Ibid.*, p. 54.
[28] *Ibid.*

In the beginning there was the passive form of suicide which was actually a requested murder. This gradually evolved into active self-murder, the psychological purpose of which was *first,* entrance into hedonistic eternity, and *second* joining, *i. e.,* identification with the dead; this hedonistic, as we say today, *narcissistic,* goal of man which espoused death in order to enter eternal life seems very early to have become charged with great psychic energy and acquired the appearance of almost a primordial instinctive drive. Achille-Delmas aptly called it "the perversion of the instinct of self-preservation," and perversion it is, not only in its form, but also in its psychological content. If we stop to think of the meaning, *i. e.,* of the psycho-biological function of a perversion, our statement will become clear. What is a perversion? It is a method and a form of gratifying one's instinctual primitive drives in a manner more primitive and more infantile than is normal. What is the gratification which is derived by the suicidal act and on what level is this gratification achieved? The first part of the question can be answered as follows: Through the primitive act of suicide man achieves a *fantasied* immortality, *i. e.,* uninterrupted fulfilment of the hedonistic ideal through mere fantasy and not through actual living. This is quite obviously a non-realistic and purely infantile way of achieving a seemingly adult goal—a fact justifying the use of the term perversion. We can see now why it is that the suicidal drive appears to be endowed with such an elemental force; it has such a force because it springs from the most vital drive man possesses, the instinct of self-preservation. It is this instinct shifted into the psychological field that drives the human ego to the assertion of immortality, and thus to fantasied preservation of the ego through death. One might even say that what man today attempts to achieve by means of books, monuments and works of art was achieved by primitive man largely through suicide. Here and there within the frame of our civilization this old method of self-assertion revives and re-enacts itself with the result that the individual destroys himself. Although this is demonstrated more obviously in psychopathological material, it is not necessarily pathological. In conclusion let us recall the almost universal idealization of the act of suicide among primitive races, and in the light of our hypothesis we will see that this idealization is in fact but another method of re-stating and re-asserting one's own immortality.

Needless to say, the hypothesis set forth here covers but one side of the problem of suicide—that of the individual's identification with the dead and his fantasy of immortality. It is obvious that a number of other elements enter into the psychic structure of the act of killing one's self, and that these elements are responsible for other types of suicide, which are at least as important psychologically as the one to which this communication is devoted. It is hoped, however, that in concentrating our attention on an isolated and what seems to be the most significant type, incontrovertible proof is offered that the proper solution of the psychological and the biological nature of suicide is to be found in the comparative and comprehensive study of ethnological material—a study which is as yet to be made.

SOME POINTS OF COMPARISON AND CONTRAST BETWEEN THE TREATMENT OF FUNCTIONAL DISORDERS BY APACHE SHAMANS AND MODERN PSYCHIATRIC PRACTICE.

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Not long ago an anthropological field-worker wrote to me to ask whether a ceremony which he had investigated among one tribe of American Indians was " the same " as any ceremony I had witnessed among Apache tribes. He enclosed some data concerning the rite in question, all of which dealt with the mechanics of shamanistic procedure. It was possible, from his material, to say what paraphernalia the shaman wielded and in what order and manner he manipulated his sacred objects. It was not possible, however, to infer the ideological pattern to which this formal routine was subordinate.

A surprising amount of anthropological research has proceeded along just such unrealistic and unimaginative lines. We may suspect that such preoccupation with the externals and trappings of primitive religion is an historical residuum of the smug acceptance of the ceremonies of pre-literate peoples as so many varieties of " superstition." While such an attitude persisted the question of whether the primitive rite could accomplish what it intended to do, whether a native curing rite, for instance, could actually relieve a malady, was seldom raised, for it was assumed in advance that the therapeutic value of the rite, divorced as it was from any scientific medical knowledge, must be exactly zero.

The increasing interest in functional disorders, and our greater knowledge of the dependence of physical well-being upon mental health have reopened this whole problem. Accordingly, in my own field-work I have tried to see Apache shamanism from the point of view of a native, in an attempt to determine what functions, therapeutic or otherwise, the shaman may perform.[1]

[1] This discussion is limited to the shamans of the Chiricahua and Mescalero Apache tribes now residing on the Mescalero Indian Reservation in New Mexico.

In fairness it should be stated that the necessity for obtaining an intimate and well-rounded picture of Apache shamanism was practically forced upon me by the nature of the ethnological problem. For the Apaches, vague, undifferentiated supernatural power, capable of being translated into personal shamanistic lore and used for good or evil ends, pervades the universe. It can be utilized by the individual only after it approaches him through the instrumentality of some animal, bird, plant or heavenly body which offers him a ceremony consisting of songs, prayers and ritual gestures. Theoretically such supernatural encounters may occur to any Apache man or woman. Such a ceremony, once gained, can be used in behalf of one's fellows.[2] From the point of view of the anthropologist with a limited amount of time and money to devote to his project, the situation appeared at first most disheartening. The sources from which these people obtained their respective powers seemed limited only by the flora, fauna and natural forces with which they were familiar. To abstract the pattern from such an array of possibilities called for a huge body of material bearing on power obtained from many sources. Fortunately I was allowed over two years to pursue the Mescalero and Chiricahua Apache researches.[3] As I had suspected would be the case, but could not, of course, so state *a priori,* the various ceremonies, except for minor variations, fell into a given ritualistic pattern. In the course of establishing this pattern, however, it was obligatory to approach Apache shamanism from every vantage point, to consult as informants people who had been involved in Apache ceremonial life as shamans, patients and on-lookers, and to build up the body of material from which this summary is drawn.

For one thing the Apache shaman is not a credulous dupe of his own supernaturalistic claims and boastings, who undertakes to cure any ailment, no matter how hopeless. Such an indiscriminate practitioner soon finds himself without honor or clients. The seasoned

[2] For a more extended treatment of Apache ritualism see M. E. Opler, "The Concept of Supernatural Power among the Chiricahua and Mescalero Apaches," *American Anthropologist,* Vol. 37, No. 1, January-March, 1935, 65-70.

[3] For these opportunities thanks are due to the Laboratory of Anthropology of Santa Fe, the University of Chicago, Columbia University, the Social Science Research Council, the National Research Council, and the Southwest Society.

shaman is a shrewd and wary person who has witnessed enough of suffering and death to recognize serious organic disturbances when he sees them, and he is often very reluctant to accept responsibility for the cure of these. In many cases the shaman will simply tell the patient, "You waited too long to call me," or, "The good in you is mostly dead already: I can't help you." One shaman, finding the youth he had been called upon to cure suffering from a most serious case of tuberculosis, resorted to legerdemain to demonstrate to those present that he was unable to be of any assistance. He thrust two eagle tail feathers down the throat of the sick boy and then shook worms from their ends. These worms were large and active. This indicated, he claimed, that they were hungry, that they had already eaten up the youth's lungs and that recovery was therefore unthinkable. Another shaman, correctly gaging the unlikelihood of success in undertaking a cure, appealed to his "power" to tell him what the outcome would be. He was instructed to touch the quill end of a downy feather to the patient's bared chest and to withdraw from the case if the feather should fall. The feather did fall, and the shaman made his exit solemnly but with every evidence of relief.

The veteran shaman who eschews the incurables is usually quick to treat the less serious indispositions and solidify his reputation by rendering prompt relief. Therefore a great deal of herbalism finds its way into Apache rites. The shaman is often interrupted by his "power" while in the midst of his ceremonial songs and directed to dose his patient with some common laxative or emetic. Of course the method of offering it to the patient is in keeping with the occasion: it must be drunk from a ceremonial vessel, perhaps a turtle's shell, the spot where the lips are to touch the vessel is marked with a cross of pollen, and the vessel must be carried to the mouth four times before the liquid is swallowed. Nevertheless the medicine is often no other than one his mother forced the patient to take in days past without so much ritual, and the disorder, perhaps induced by faulty diet, is almost gone the next day.

What I am suggesting is that the Apache shaman is far from an inspired automaton who enters upon his ritual without regard to the nature of the complaint, the circumstances and the probable outcome. He is a circumspect and careful worker more often, a good judge of his fellowmen and of the ills to which humankind

is heir. It is the exemplification of these qualities which accounts, in some measure at least, for the vitality and tenacity of Apache shamanism. Of course the Apache shaman, like our own patent medicine vendors, often receives credit for the cure of those who would have recovered in any case, and who were not influenced one way or the other by his efforts. We do not mean to claim, of course that the shamans never take cases except when recovery is certain, or that they refrain from prescribing remedies except where they are familiar with an herbal specific for some minor irritation. I have recorded many cases where the heroic treatment prescribed by the shaman would cause the medically minded to groan, and where the results were certainly disastrous if not fatal.

It is apparent that so far as actual organic pathology is concerned, the shaman's contribution is largely a negative one; the less he does, the better for the patient. Our interest in the shaman in such contexts is to witness his adroitness, to watch with what acuity he estimates the seriousness of the ailment and how cleverly he protects himself and his "power" should a turn for the worse or a fatality ensue.

But, while the shaman's stock in trade can scarcely be recommended for serious bodily disorders, there is a province in which he can claim better success. We refer to functional or mental difficulties. Evidences of mental disturbance, ranging in gravity from slight tics to suicidal and homicidal mania have come to my attention in the course of the Apache researches. Apache culture is especially conducive at many points to states of morbid fear and anxiety. The first attempts to control the child are in the nature of appeals to fearsome bugaboos and in terms of terrifying penalties, not excluding castration threats. As he grows older he learns to fear the ghosts of the dead and the sorcery of living rivals. One sensitive informant moodily stated it thus: "The Indian's main concern is fear. . . . . I've been thinking a good deal about this. It seems that the whole Indian life is fear. The word is used a great deal too; there is fear of eating the head of an animal, fear of this and that. I go visiting people and hear it."

Space does not permit an extended discussion of the many specific instances of functional disorder noted and the details of the treatment by which the morbid manifestation or its symptoms were

relieved. That is reserved for later treatment in monograph form. All that is proposed here is to call attention to the degree to which the Apache shaman attempts to cope with mental anxiety and pain and to compare, in broadest outline, his attitude and technique with the methods of those who face the problem of alleviating mental distress in our own society.

In the first place the Apache insists upon the impossibility of curing one who is sceptical of the efficacy of the ceremony to be performed or unconvinced of the integrity of the practitioner. The stage is set so as to command confidence and belief in the shaman. An Apache who seeks shamanistic help has to humble himself to a point which would be unacceptable unless he were prepared to put himself unreservedly in the hands of the practitioner. The sufferer or a relative who speaks for him must approach the shaman in the most obsequious fashion. He must call him by a relationship term, whether or not the shaman is a relative, lay a ceremonial cigarette at his foot, tell of his great need and of his absolute dependence upon the particular shaman's ceremony. " Only you can help me. Do not fail me know," is the closing plea. The shaman ponders the matter. He mutters something about the ingratitude of a former patient or the pressure of other duties. After a sufficiently significant pause he stoops with fine condescension, picks up and smokes the cigarette, and so indicates that he will take the case. But he does not go at once to the rescue. Instead he advises the supplicant concerning four ceremonial gifts which must be tendered him as payment to his " power " before he can proceed with the rite proper. A representative set of such gifts would be a pouch of pollen, an unblemished buckskin, a downy eagle feather and a piece of turquoise. Even after these have been presented, he has other orders to give. A special structure for the rite, with the door facing the east, is often demanded, and the close relatives of the patient are expected to furnish all the labor involved. By such requirements the Apache shaman takes pains to eliminate half-heartedness at the outset, and he proceeds on the assumption that for best results confidence in the technique he is to use, confidence in his ceremony and his " power," must be instilled.

Accordingly, when all is in readiness and the ceremony is about to begin, his first act is to validate his ceremony, and to impress

the patient and the assembled relatives with its potency and its source. He describes the supernatural encounter which led to the acquisition of the ceremony; he relates how he was led into the "holy home" of the "power" and there tested in every conceivable way, how the ceremony and its uses were unfolded before him, and how, through his ceremony, he has since been able to enlist the aid of his "power" in the curing of those who come to him in the proper fashion.

The insistence upon belief in the shaman and his "power" is one of the most dominant and omnipresent themes of Apache ritual life. There is no more common phrase in the ceremonial songs than the one which can be translated, "I believe it." It is assumed that the "power" will scarcely be inclined to extend itself or to expose its representative to danger on behalf of a patient who lacks the requisite degree of faith. Quite understandably, then, every voluntary and heart-felt expression of faith on the part of the patient is accepted as an encouraging sign. During one ceremony of which I have a record, the patient, deeply stirred, suddenly joined the shaman in the chanting of his song. The shaman, immensely pleased and gratified, predicted an unusually speedy recovery for this woman on the grounds of her evident belief and religiosity. Conversely, when the patient remains apathetic and disinterested, the shaman is prone to explain an alleged failure of the ceremony by this circumstance. Perfect faith is required not alone of the patient but also of all those in attendance at a rite. Shamans have been known to refuse the benefits of their rite until persons suspected of manipulating power for dubious ends, or persons with a marked tendency to scoff at the supernatural claims of others, have been requested to depart. The shaman usually exercises authority in the selection of those who will be allowed to enter the ceremonial shelter, and he reminds those present of their vicarious participation in the event by imposing some restriction upon them. He may, for instance, forbid them to scratch their bodies with their fingernails during the ceremony proper. Often he pauses to exhort them to "good" thoughts and prayer for the sick person.

As a spur to credence, respect and faith the Apache shaman often resorts to legerdemain. Most commentators upon shamanistic

sleight of hand are inclined to judge the acts in terms of truth or deception, and accordingly are compelled to frown upon what they feel to be the fraud and trickery involved. Their strictures, at least for the Apache shaman, miss the essential core completely. It would be as intelligent to berate those who screen a motion picture as deceivers for using trick photography. The trick photography is designed to produce a pleasing illusion; the Apache ceremony is designed to inculcate belief in the shaman's powers. The shaman at no time feels impelled to share the secrets of his art with the patient. His office, as he conceives it, is to promote that state of mind essential for a cure.

With the preliminaries over, the shaman, in an effort to delve to the root of the trouble, "traces" his patient. Thanks to the good offices of his "power" the events of the patient's life leading up to the psychotic symptom are supposed to become clear to him. It is commonly said among the Apache, "You cannot hide anything from a shaman. They know everything you have done and every place you have been from the beginning." In practice this may mean that a competent shaman has occupied his time well in learning everything possible concerning a prospective patient before the treatment begins. Armed with such knowledge the shaman makes a great display of enumerating the significant events of the patient's life. He may have facts in his possession which the patient has long forgotten. He may have unearthed gossip which the patient thought relegated to the past or unknown to anyone besides himself.

Much more is involved here, of course, than mere industry displayed by the shaman in interviewing those who are acquainted with the patient's history. The differential in respect to the gifts and aptitudes of the various shamans is considerable. It will readily occur to the reader that some shamans must be more sensitive than others to the difficulties and fears of a patient, quicker to intuit or grasp the situation, more skillful in drawing out valuable clews, and nearer the mark in deductions drawn from those clews. At any rate, the patient is warned that the true facts cannot be hidden. He is urged to add as much to the shaman's account as possible and to produce as complete a picture as he can of the events and circumstances surrounding the inception of his trouble. With his

memory thus jogged, the actual event or trauma which crystallized the tic or seizure is often recalled, and in the course of such associations the symptom may actually disappear.

Now the event which precipitates the symptom, anxiety or obsession is always couched in familiar Apache terms. There is a group of animals and birds among which the snake, the bear, the coyote and the owl may be listed, that are known for their " evil influence " and " evil associations " and through which sorcerers are thought " to work." It is often recalled that the symptoms date from an encounter with one of these.

But to drive the inception of a psychotic symptom back to an incident involving a dreaded animal or bird is no complete explanation, even though it may temporarily relieve the patient. It is no more a solution than is the ability of a psychotic in our society to recall the precise moment when a sympton of his took shape. The symptom is itself a symbol of deeper-lying difficulties, and unless these can be investigated there is no sure safeguard against recurring symptoms and continued psychosis. The therapeutic value of the shamanistic treatment so far as we have described it may be compared roughly with the early work of Breuer, where he induced a patient under hypnosis to recall the circumstances under which a hysterical symptom first took form and was thereupon able to dissipate it.

One note of caution should be sounded here. The Apache's point of view in respect to the accuracy of a shaman's explanation is pre-eminently pragmatic. If the patient's anxiety is relieved or the symptom disappears, the success of the shaman's effort " to trace " the difficulty is accepted without reservation. But we must remember that the shaman generally takes the lead in offering these explanations and that he first has induced a state of mind and an atmosphere which guarantee that his diagnosis will not be treated lightly. It is not unlikely that where the shaman has evoked the belief and confidence for which he aims, a very tried and troubled patient will accept his explanation with alacrity, and even, at least for a time, obtain great relief from it, no matter how wide of the mark it may be. In short, we have every reason to believe that a substantial part of this Apache therapy consists of suggestion. In the hands of a clever and thoughtful shaman suggestion may be a

powerful weapon, but whether it can penetrate deeply enough to the core of the disorder to effect a permanent cure is questionable. My records and accounts of ceremonies tend to indicate that specific symptoms are cleared up only to be replaced often by symptoms of a different form. Since each symptom is treated as a separate disease, the recurrence of the disorder, when the symptomatic expression is different, need not be accounted a failure for the shaman. I have, for example, been following the case of one woman who has undergone at least five ceremonies for hysterical attacks in recent years and is quite satisfied that she has been cured on five different occasions. We shall return to this problem later.

It is noteworthy that Apache shamanism does not halt with revealing the symbol of the patient's distress, the bear, the snake or whatever has served him as the rationalization for his psychotic flight. The shaman's task is now to learn why the embodiment of evil "bothered" his patient. For the answer to this question he envokes his "power." He sings his ceremonial songs and recites his prayers in an effort to communicate with his "power," to obtain its aid in tracing down the forces which have made his patient ill and to gain its support in opposing those forces. The effort to enlist the co-operation of the "power" in this work is often a stirring spectacle. The shaman halts his songs to carry an extempore appeal to his "power." He tells how eager he is to cure his sick friend. He reminds his "power" of his faithfulness to its commands, of the promises it has made to him. He dramatically relates his conversations with his "power" to those in attendance. In the end he announces, of course, his "power's" complete interest in the case and its determination to prosecute it to a successful conclusion.

The lines of the battle are now drawn. It is the shaman and his "power" against the forces which have caused the patient's illness. Further songs, conversations with the "power," and ritual manipulations reveal the underlying cause of the illness. A sorcerer who hates or envies the patient has used his "evil power" and sent the bear or some other fear inspiring animal to frighten him and make him sick. Or the evil power has been used to shoot "arrows," objects of witchcraft such as bone, hair, etc., into the patient, it may be claimed.

We may pause to consider the psychological significance of the concept of sorcery as it appears in Apache ideology. In another paper I have commented upon the fear, as it manifests itself in Apache society, that one may be destroyed by the " power " of a close relative.[4] The conclusion was reached that such fear became overt and pathological only when actual rivalry and opposition in every-day affairs were shown to be present. In other words, the unreasoned fear of a relative's " power " was found to be related to the Apache's realization (often unconscious, of course) that a mundane basis for his fright really existed. This explanatory principle can be extended to the morbid fear of sorcery in general. The fear or suspicion of any Apache that sorcery is being leveled against him arises, in last analysis, because his guilty conscience acknowledges the grounds for retaliation, upon a supernatural level, for opposition, death wishes and antagonisms he has directed against others. The fear that he may become the object of the " evil power " of others is to be related to the Apache's consciousness that he has done wrong, or that he is the object of criticism and dislike among his people.

I have in mind an informant whom I grew to know rather well. This man related to me the following story. He attended a ceremony where his mother's sister officiated as shaman. A series of sudden deaths had occurred in a certain family, and the ceremony was held to heal two sick survivors and to determine the cause of the deaths which had already occurred.

The shaman learned in the course of her ceremony that a feud between the stricken family and another had resulted in the " witching " of a gate through which the members of the former customarily passed. The shaman added darkly, " Some of our own relatives came pretty close to that gate too." The informant thought she looked directly at him when she said this. A little later he went to the brush to defecate. When he tried to arise he found it difficult to do so. In all probability he was the victim of nothing more serious than a cramped muscle, and in other circumstances would have dismissed it from his mind. But, with the memory of the gate episode still fresh, his immediate thought was that he was paralyzed.

[4] "An Interpretation of Ambivalence of Two American Indian Tribes," the *Journal of Social Psychology*, Vol. 7, 1936, 82-116.

In an agony of excitement he reached for a stick with which to force himself upward. One can be sure that he grasped the first stick his fingers touched without considering whether it was equal to the task. The twig broke under his weight and, as he somewhat inelegantly told me, " I went down in all that mess. I couldn't move. I called for my father and mother. My sister came running. I said, ' Sister, you'd better get back. Something is wrong.' [5] She ran back crying. Then my brothers came running up, and they pulled me out. They were crying too. My mother came and carried me on her back like a little baby, smelling and dirty. Think of it! She took me to a tent and cleaned me up." The informant was a full-grown man when this occurred. His father performed a ceremony over him and cured him on this occasion.

We relate another experience which befell the same man. He was, among others, being painted and dressed to impersonate the Apache masked dancers who appear in certain rituals. At one point he forgot himself and spoke and swore in English while they were painting him. The old man in charge of the rite was quick to correct him. He said, " Look here, that kind of talk doesn't go here. You men should be praying in your hearts. Pray for all the good things. Be saying, ' Let me be a reliable masked dancer. Let me be reliable in life.' That's what you should be doing while you are in this brush hut." Later the younger man forgot again. He had difficulty in placing the mask over his head and he burst out with, " I can't get this damn thing on! How does this damn thing work? " His fellow dancers remonstrated with him, and the old man shouted, " Hey, what are you doing? Now if anything happens to you, you'll say you are witched, but I warned you." The masked dancers left for the place where they were to perform. Early in the dance this man was seen to press his hands to his head, break out of line, tear his mask from his head and run towards his camp. He was found " crying and yelling and rolling around." The old man who had warned him of the danger he courted by his impiety thereupon held a ceremony over him which cured him.

[5] Great reserve exists between Apache siblings of opposite sex, especially in sexual matters. It is most interesting that the informant, despite his evident anxiety, had presence of mind to keep his sister at a distance.

Perhaps it will be wondered why these two attacks, interesting enough in themselves, have been introduced at this point. Their significance lies in the fact that this man has flouted the customs of his forefathers more often, perhaps, than any member of his tribe. He has hunted and handled animals which no other Apache would touch and he has taken pains to oppose the white man's belief and way to the native conception at many points. He is accordingly disliked and suspected, and he is well aware of it. "I guess many of these Indians think I am a witch," he once said ruefully. "I've done just about everything, and I guess I'm the only Indian who has." But for all his veneer of emancipation, this Apache is far from untrammeled by the conceptions of his fellow tribesmen. Not only does he fear that their claims of supernatural power are real, but he deems himself, because of his waywardness, an especially likely target for the supernatural missiles.

I do not insist too strongly upon this analysis of my informant's hysterical attacks. Admittedly I do not know the man and all the conditions involved as thoroughly as I should like. Dream evidence tends to support the interpretation outlined above, however. The informant's dreams seem to emphasize the perplexing loneliness in which his division of cultural allegiance has left him. In one dream he finds himself alone, fighting a ravaging fire that sweeps down the canyon. In another he walks unaccompanied out on a plain. Nothing but one tree is visible and he proceeds towards it.

If we have gained some insight into the problem of how fear of the supernatural power of those who have reason to dislike him may arise in an Apache's mind and find an outlet in hysteria and anxiety, we may continue to a brief review of the measures by which the shaman seeks to assuage and dismiss such fear.

What the Apache fears is the murderous attack of power from the out-side. In the place of his patient, who has recoiled from such fears to the extent of becoming psychotic, the shaman substitutes himself. The battle between the malevolent power and the patient is transformed into warfare between the shaman and the sorcerer. As soon as the shaman has announced that the cause is sorcery, he declares against it. "I hate that; I hate those who kill people in a way that no man sees. I'm going against that witch with my 'power.'" The shaman continues to sing. He consults with his

" power " on tactics. He relates how the sorcerer is trying to balk him and is desperately trying to hold his own. The theory is that a sorcerer, if bested, forfeits his power and his life. If the sorcerer cannot prevent the shaman from sucking the bone arrows and other evidences of his malice from the body of the victim, these objects " come back on himself." A sorcerer whose " power " is bested is shot by his own " arrows " and dies soon afterward.

The strengthening psychological effect upon the patient of gaining a powerful ally can well be imagined. The shaman conveys the impression by his words, actions and general fury that he and his " power " are now the outraged ones instead of the patient. As is to be expected, the shaman seldom admits failure (though if the patient turns markedly worse, he will concede defeat) and his unqualified triumph over the " witch " is a great source of relief to the patient. The attention of the sick person is distracted from his own morbid symptoms to the struggle between his surrogate and the evil forces. Figuratively speaking, the patient is removed from harm's way while the battle rages. It is the shaman who assumes the dangers of the conflict. Should he lose, the patient will be no worse off than before, whereas the unlucky shaman will be in grave danger of losing his life, or of witnessing the death of some member of his own family.

At the conclusion of the ceremony the shaman makes a final gesture which may in some cases have decided therapeutic value. He imposes upon the patient some restriction or taboo. It may be an injunction to eat no meat from the head of an animal, to eat no entrails, to refrain from picking up some object which has been dropped, etc. It offers, in place of a tic or compulsive symptom, a clever substitute. When it has served its purpose and becomes irksome, a short ceremony at the hands of the one who pronounced the taboo makes its continuance unnecessary.

If, now that we have made some acquaintance with the details of an Apache ceremony, we pause to consider it as a totality, we shall be impressed with the consistency and consonance of its elements. First the ground is prepared for the ready acceptance of the explanation by the inculcation of belief in the shaman and his " power." Then the explanation is offered. Finally the shaman endeavors to protect the patient from the evils described in the

explanation. The dominant figure that emerges throughout the whole picture is that of the shaman.

The question that naturally arises now is the comparative one: Are these shamans the equivalents in Apache society of our psychiatrists and analysts? Are the assumptions which govern the efforts of the Apache shaman founded on principles distinguishable in our own psychotherapy? Here some essential differences between the treatment of mental disorders in the two settings must be noted.[6]

To begin with, the absolute faith upon which the shaman insists is not considered nearly so essential by the psychiatrist or analyst. In specific cases and in certain types of mental disorder confidence in the practitioner is no doubt desirable, but very often, and without prejudice to the final result, various stages of treatment may be marked by violent dislike or suspicion directed against the analyst.

It is not difficult to fathom why the Apache shaman must press for such unequivocal faith in his powers. He is about to attack the patient's symptoms largely through the medium of suggestion, and for suggestion to have any noticeable effect the receptivity and co-operation of the patient are demanded. Now it may well be that the shaman, aided by his own sensitivity and awareness, and guided by his knowledge of the patient and such information as the patient advances, actually can, in particular cases, correctly suggest the circumstances under which the symptom formation took place, and thus prove instrumental in alleviating that symptom. In other cases, it is just as certain, explanations which are far from true are accepted with avidity, partly because of the immediate relief they offer to those anxious and insecure, and partly because of the atmosphere of assent to the word of the shaman that has been evoked. In either case it is fatuous to suppose that the shaman, whatever his merits, has delved to the roots of the trouble. For one thing the Apache ceremony lasts but four days, a rather limited time in which to effect a permanent cure of a functional disorder. Again, the shaman's limitations of ideology are those of his patient; both are bounded and halted by the round of Apache conceptions.

[6] I am indebted to Dr. Harry Stack Sullivan for advice on some aspects of this paper which touch upon the problems and methods of modern psychiatric practice.

Even if the shaman succeeds in establishing the nexus between the mental state of his patient and some terrifying experience with an evil animal, natural force or witch-suspect to which the patient was subjected, he gets no farther than this symbol and its attending symptom. The animal or "witch" is, in keeping with the tenets of his culture, acceptable to the shaman as the final explanatory principle, and the personal or social situation which lurks behind the convenient symbol remains unexplored. If we were called upon to characterize the Apache shamanistic treatment of mental disorder in a sentence, we could legitimately say that it entails dealing with symptoms alone by the method of suggestion.

In psychiatric and analytic work the use, to some extent, of suggestion and explanation is perhaps inevitable. The careful worker takes infinite pains, however, to prevent over-guidance and suggestions on his part from becoming an impediment to the cure. As in Apache society, a neurotic of our own civilization will often accept erroneous explanations and will do it for such diverse reasons as the unconscious wish to prove the analyst wrong and thus to reduce him in stature or a desperate need for some prop to buoy up failing courage.

Likewise is the question of the amount of attention and treatment that symptoms in themselves should receive a perplexing one for us. Sometimes a symptom can be such a burden to the patient as to make living difficult and so solicits immediate attention. There are other cases which do not yield in entirety to extended treatment and where the only recourse, seemingly, is to deal with the symptoms as they appear, to tinker with the mental machinery in an attempt to keep it running as efficiently as possible. Apache ceremonialism is a veritable laboratory for research in respect to the questions of symptom treatment, the advisability of suggestion techniques, and the durability of benefits gained as a result of them. It is not unlikely that abundant Apache data concerning these points could be a distinct contribution to the understanding of our own problems in these directions and might lead ultimately to practical measures concerning them.

One more major distinction between the shamanistic technique and the psychiatric view requires emphasis. In the description of Apache ritual I have had occasion to draw attention to the promi-

nent rôle played by the shaman, especially in the supernatural contest with the sorcerer, evil animal or whatever has caused the distress of his patient. By taking his place and waging his battle for him, the shaman attempts to protect his patient on a psychological level from the forces which have been disturbing him. Such succor may easily relapse into over-protection. What relief the patient experiences then, and that relief in many cases is quite genuine, is bought at the price of too great dependence upon the shaman.

An incident will illustrate this point. I was about to give a certain Apache money in payment for his services. He surprised me, however, by requesting that the remittance be made in the form of groceries which were to be delivered to the camp of another man. When questioned concerning this unusual procedure he pleaded his great respect for the proposed beneficiary, who, according to him, was poor, aged and deserving. Later he admitted the true circumstances. The old man to whom I was expected to deliver the groceries had performed a ceremony over the wife of my informant and cured her of an attack of " ghost sickness," the dread of persecution by the shade of a dead relative. The required payment had been made at the time of the ceremony. But the frightened woman and her husband were still nervous and apprehensive. They felt that their future safety depended upon the continued protection by the shaman, and desired him to mention them in his prayers and duly warn and guard them if another misfortune were headed their way.

This excessive dependence upon the shaman has its decided drawbacks. It offers a tenuous hold on health which is at once disrupted whenever the patient loses confidence in the shaman or whenever the shaman loses interest in the patient. In the case cited above the husband and the shaman at length suffered an altercation, and the woman a relapse. To this dependence upon perfect confidence in another, modern therapy opposes the strengthening whenever possible of the patient's ego to the point where he can stand alone and, without panic, exercise some insight into his own forebodings and actions.

The question of extending the boundaries of psychiatry to include the data of pre-literate peoples is today of first importance and is earning the considered attention of a number of serious students. Progress along such lines waits upon the development of what Pro-

fessor Edward Sapir has called "the field of personality and culture," an area which presupposes investigators secure enough on anthropological grounds so that the cultural milieu against which individuals must be gaged will emerge for them, yet sensitive enough to the problems and findings of psychiatry so that the consequences of different cultures upon the mental life of man will not go unrecorded.

A STUDY OF ALCOHOLISM IN MEN.*

By JAMES HARDIN WALL, M. D.

In an approach to the study of alcoholism, the writer has selected 100 men who were patients at different times in the Bloomingdale Hospital between 1920 and 1933, a period of 14 years. They represent the total consecutive admissions of cases in whom the immediate cause of hospitalization was alcoholic indulgence. The diagnoses were as follows:

Diagnosis.	No. of patients.
Alcoholism without psychosis	55
Psychopathic personality with alcoholism	12
Delirium tremens	10
Acute hallucinosis	15
Korsakow's psychosis	7
Alcoholic deterioration	1
	100

The background of these patients is of interest. In the two preceding generations of 71 patients there were one or more relatives who used alcohol to excess. There were 27 alcoholic fathers. One cannot say definitely that the tendency to drink excessively is inherited, but these figures are significant for this particular group. Of striking interest concerning the family was a type of mother found in 37 instances. These typical mothers were inclined to have an exaggerated emotional attitude which manifested itself in spoiling, pampering, indulging and overprotecting their sons, the patients. It is quite possible that this type of mother was more frequent than was indicated by our family histories.

As to the religious faith of these men, 70 were Protestants, 27 were Catholics and 3 were Jews. They came from families who were economically in comfortable circumstances.

In the literature on the subject of alcoholism, there is one outstanding trend of thought which has been increasingly emphasized

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during the past few years, namely that alcoholism is a symptom and a result rather than a cause. Psychiatrists have become more interested in the personality of the patient and in the impulse to drink. In this respect, what can we learn from this group? The early infantile period of most of these patients had been forgotten by the informants. In only 10 was such a thorough study of the early period obtained. As infants they were prone to develop colic, did better on artificial feedings, and thumb sucking persisted into childhood. One patient, as a child, was fond of consuming large quantities of fluid; in his early teens he drank seven quarts of milk in one day. As adults, they loved to talk, were fond of singing, and were inveterate users of tobacco, indicating rather strong oral cravings and demands for satisfaction. Food idiosyncrasies, gastro-intestinal tensions and fastidious appetites were noticeable even during their hospital residence.

In considering the relation of these patients to other members of their families, the mother attachment in 37 individuals has been mentioned. Small families were fairly common; 14 were only children, 16 had only one other sibling; and naturally in these families the parent-child bond was strong. These patients from childhood were inclined to respect but fear their fathers.

There was a surprising lack of ambition and well formulated plans for life work among them; 65 were individuals who had shown a tendency to drift through life, holding a position here and there, with no great responsibility or future possibilities of advancement. Among this particular number were eight who from adolescence had been inclined to be dishonest, the passing of worthless checks being the most common example. On the other hand, 35 were men of accomplishment. There were 6 physicians, 6 lawyers, 5 executives, 3 writers of distinction, and one from each of several other professions. Among the group were 32 college graduates, although not all of this number were accomplished.

Concerning the psychosexual development of the alcoholic patient, much emphasis has been placed on homosexuality, particularly in the psychic sense. No one with psychiatric experience doubts its significance, and its manifestations in this group of men throw some light on the problem. There was a history of overt homosexuality in only 11 cases. From a physical and constitutional angle, it is of interest to note that only 3 of these 11 showed

feminine make-up, while in the entire group, the feminine make-up occurred in only 12. Material gleaned from these patients' histories points toward the psychogenic or environmental origin of homosexuality. Reference has been made to the mother attachment which was certainly fostered and encouraged by the 37 typical mothers, and out of this situation there developed a feminine identification, a dynamic factor of determined force in leading to a feminine approach to life as observed in these unfortunate individuals. Their lack of masculine security and aggression was obvious, oftentimes portrayed in a dramatized beaten attitude toward life in general. They were envious of successful males in their families and frequently admitted feelings of inferiority.

Their social relations with men were characteristic; they enjoyed the company of their own sex. Those who had been closely associated with men, in school or military service, looked back upon those periods as the happiest times of their lives. The preference for male drinking companions was noted, together with the tendency to become attached to the rough and tough type of the lower walks of life. The trends of those who developed alcoholic psychoses revealed the homosexual conflict. In the 10 cases of delirium tremens, the visual hallucinations of symbols for male genitals, together with the fear of impending disaster, were convincing evidence. In the 15 cases of acute hallucinosis, the commanding and accusing voices of the auditory hallucinations referred to a conflict on a passive homosexual basis. In those cases without psychosis, a careful psychological investigation brought forth fantasies of being assaulted sexually, of being mutilated, and in three cases which were psychoanalyzed, there were fantasies and dreams of actual emasculation. From a dynamic point of view it was significant that the passive homosexual strivings were not accepted, but were definitely rejected and associated with anxiety and fear.

In their relations to members of the opposite sex, there were striking over-compensations to be observed. In the series there were 41 who had to have many women in their lives. At puberty, and most often under the influence of alcohol, they began to have sex relations, for the most part with prostitutes. This urge continued into adult life and after marriage the Don Juan strivings persisted. These sexual affairs were purely sensual and in a sense autoerotic. There was no tender or lasting regard for the women

and frequently the experiences were to be interpreted as merely boasts of the individual's sexual prowess. The inability to sustain normal sexual relationships with socially acceptable women, the frequent occurrence of ejaculatio præcox, and the inability to perform the sexual act without the aid of alcohol were proofs of the fundamentally weak heterosexual drive.

Of the 72 married men in the series there were 19 who married women who were obviously inferior socially and intellectually. One married a prostitute, another married a woman of questionable character after a day's acquaintance, while another married a veritable stranger in order to collect a trifling wager from a drinking mate. With such illustrations, it is not surprising to find most unhappy marriages. There were stories of quarreling and bickering, and in 11 instances, the patients were physically cruel to their wives, noticeably at the time of the partner's pregnancy. Toward their children, an attitude of indifference or jealousy was prevalent.

Pathological jealousy, which has been thought to go hand in hand with alcoholism, was not so common in this group; perhaps it would be more frequently met with in men of different social strata. It was a particularly strong factor in the 14 men who were divorced and in these men an interesting repetition of a pattern was apparent. In separating from a wife who was actually unfaithful, the man would either be involved at the time with another woman, or later choose to marry a woman of quite similar character. The cooling ardor and the occurrence of impotency after marriage led to marital infelicity and further philanderings. In this group, the tendency to become pugnacious while under the influence of alcohol was noted.

For the entire group, the average age to begin drinking was 18. Many started earlier: one at 9, six at 14, nine before 16, 29 at 17, 33 between 17 and 20, showing that 78 had begun to drink to excess by the age of 20. Even at this early age, the features of pathological drinking were present. Solitary drinking often marked the beginning; and for those who were introduced to alcohol through the occasional temperate social glass, the solitary consumption of large quantities immediately followed. Those given to periodic sprees were inclined to frown upon social drinking, especially during the too infrequent periods of abstinence. Following moderate drinking at a dinner or social gathering, the individual usually

continued to imbibe alone until he reached a state of actual intoxication. During bouts and sprees there was a noticeable neglect of proper nutrition and water intake. The use of alcohol in these cases differs widely from its use by many people who enjoy an occasional glass. The pleasant social drinking sinks into the background and a sort of craving for the anaesthetic effect becomes paramount. The amount of alcohol consumed daily varies a great deal. The average maximum consumed during 24 hours was one quart of whiskey. In the older patients it is remarkable how little tolerance exists; oftentimes only small quantities induce intoxication.

In young men and particularly at the time of puberty, boasting about drinking is observed. Drinking becomes an accomplishment and even among older men, the alcoholic speaks of himself as a "two quart per day man" and of a weaker drinking companion as a "one quart man." Unfortunately there is a close association between the deference paid to prowess in drinking and prowess in the sexual field, as pointed out by Abraham. The alcohol, which was thought to be a sexual excitant in many cases gradually undermines potency and becomes superior in its pleasure effect to sexual enjoyment, as pointed out by Rado.

The relationship of alcoholism and especially alcoholic psychoses to other types of mental disorder has been discussed by many writers. In this group there were 55 diagnosed as alcoholism without psychosis, 12 as psychopathic personality with alcoholism, making a total of 67 cases that were not psychotic. These 67 patients had certain characteristics in common. They were impulsive and unable to postpone gratification. There was a craving for the blissful state of infantile omnipotence which drinking induced in these narcissistic individuals. One man, in all seriousness, criticized his wife's unsympathetic attitude. "She had known no drinking people and did not know how to make me more comfortable during and after a spree," were his words, which were typical. The lack of social feeling and consideration for others, together with the above-noted characteristics, suggest the constitutional psychopathic type of personality. One frequently sees a man with the combination of valuable personality assets and the tragic liability, as manifested in alcoholism. A more careful study of the underlying psychopathology in each patient reveals a more serious

problem than the more obvious behavior and facts would suggest, and in turn leads us to a re-evaluation of prognosis and treatment.

The following two cases are presented as illustrative examples of the case material studied:

The first patient, a divorced man of 35, came to the hospital on April 15, 1925. For a week prior to his admission he was consuming 2 quarts of whiskey during 24 hours, he was involved with a woman of questionable character, and naturally he was incapacitated for work as a salesman. In the family history the maternal grandmother and a maternal uncle had indulged to excess in alcohol. Members of the family were accomplished and capable. The patient was the older of two children, and his birth and early development were normal. Being precocious, he learned to play the piano at four and at the same time began to read widely. He was physically healthy and his progress in school work was steady. From childhood he was bold, direct and daring; he was a leader, and in his classes he was a popular favorite. At 14, the time of puberty, he began to frequent saloons and although under age, he entered the front door of public drinking houses and was served. At this time his drinking was considered by him to be a manly gesture. He was forward sexually and in his teens began sexual relations with prostitutes. At 19 he entered college. Learning was easy for him, but he did not apply himself diligently. He was twice expelled on account of drunkenness. Upon finishing his college work at the age of 24, he entered upon a career as a salesman. He was successful, but changed positions quite frequently. He would terminate one position after another with an alcoholic spree. Socially he was popular. He loved to talk and was fond of playing the piano and singing in public. He smoked excessively and on occasion chewed tobacco. He was extremely fussy and finicky about his food. Toward women he was affectionate, with a sensual directness that was rarely repelled. He sought no companionship in members of the opposite sex, but frequently remarked that the place for a woman was either in the kitchen or in bed. Shortly after finishing his college work, he married suddenly a motherly but unattractive type of woman. She was five years older than the patient and from the first they were incompatible. He had sexual relations with her only when under the influence of alcohol. Within a year after the marriage, he lost interest in his wife, finally divorced her, and turned to many women for his sexual pleasure. These women took most of his money and he was usually very dependent upon a woman with whom he was having an affair.

For 10 years prior to his admission his sprees became increasingly frequent. He was finding difficulty in getting work. While intoxicated he was insulting and frequently got into fights. He never had a delirium, but at times he felt terror-stricken, could not sleep and kept his brother all night in a room with him, with the lights on. During the five years before his admission, he was living with a woman who wished to marry the patient. In his sober moments he did not think of marriage, but on a spree he was mildly enthusiastic. His elaborate plans to marry were interrupted by relatives and friends, who persuaded him to come to the hospital.

He was a tall, handsome man of athletic build and masculine make-up. The physical examination, together with the laboratories studies, were essentially negative. He was able to start with a full schedule of occupational therapy, physical education, and social activities. He was very fond of golf and tennis and he always wanted more physical exercise than others. Within three weeks he had gained in weight, his feelings of being a failure gave way to a philosophy of lightheartedness and he was happy in the hospital environment. He was frank in admitting that he never knew why he drank, and was also truly curious to understand his inner motives. It was decided by the staff of the hospital that he was a suitable patient for psychoanalysis and after his first two months in the hospital this therapeutic procedure was begun. Immediately his reaction was one of defiant submission. He made light of the treatment, gave long dissertations on food, told amusing stories of his sexual prowess and produced ridiculous fantasies. Within a month his attitude changed to one of dependence; he asked advice about all matters in his life, including his desire to marry the previously mentioned woman. He sought direction in smaller things pertaining to his schedule. He gained insight into this dependence and understood the compensatory nature of hs defiance and boastfulness. For many months he brought forth and worked with material relative to his passive homosexual impulses. Before the first psychoanalytic hour there was a dream of having passive homosexual relations with another patient, a physician. Then came the story of strong homosexual impulses which he had fought against; there was no history of actual homosexual relations. Since childhood the impulses manifested themselves in fantasies and dreams and were unusually strong when he was intoxicated. At the same time there was a conscious attitude of disgust for homosexuality. He elaborated on his masochistic fantasies of being tortured and submitting to sexual assaults. He recalled that he had nearly taken his own life by demonstrating the act of hanging to some of his friends. Reluctantly he admitted that masochistic fantasies accompanied his masturbation during adolescence. He disclosed and worked through a strong emotional attachment to his mother and an unreasonable hostility toward his father. The latter emotional attitude had interfered with his progress as a salesman. He could not tolerate authority, but wanted to be his own boss, and this complex was at the basis of his frequent changes in positions. During the time of the unburdening of his memories and fantasies of a hostile character, he received minor injuries while playing games; these were psychogenic accidents on the basis of a self-punishment, in reaction to accompanying feelings of guilt.

His disgust for women as companions was related to a strong fear associated with his incestuous attachment to his mother. He escaped any anxiety and fear by falling in love with women of inferior station. After 10 months in the hospital, he brought himself to the point of making a definite break with the woman already mentioned. At the same time he began to commute from the hospital to his work and took over the expense of his treatment. He discovered an interesting relationship between his beginning to drink and a jealousy of his younger sibling. At this time, *i. e.*, when he was 14, the younger brother was born. Most of the attention of his mother was turned on the new

arrival. He felt deserted, lost interest in his school work and as previously noted, began to use alcohol.

He was sufficiently interested in his treatment to remain more than two months after the expiration of the inebriate commitment. He left the hospital on July 1, 1926; he was under treatment for 14½ months. Since his discharge he has been most successful as a salesman, remaining with the same organization; he is happily married and he does not drink.

The second patient, a married man of 40, a chemist by profession, was admitted on February 1, 1930. There was a history of excessive drinking, which during the past year had incapacitated him for work.

The patient's father and three maternal uncles were prone to drink immoderately. The mother was most indulgent, and it was to her that the patient went for help and comfort. He was the older of two children. His birth and early development were uneventful. He was bright and did exceedingly well in school. He was pampered and overprotected by his mother, and when sent away to school at the age of 15, he complained bitterly of homesickness. He and his younger brother were devoted, and they were sent to school together. At 15, he began mutual masturbation with his brother, who was two years younger than the patient. In school they did not mingle freely with other boys and were far from being popular. When he was 18, he and his brother began their college work. They were disappointed over not being invited to join a fraternity and they turned to alcohol for solace. There were frequent sprees during college, but the younger brother fell in love, married while in college, and in a sense deserted the patient, who continued to derive his greatest satisfaction from his cups. Upon graduating from college, at the age of 22, he returned to his native city where his social and professional contacts were above the average. For a year he did well as a young chemist, and in the meantime he became acquainted with a young lady of his own social standing. Their friends' and her desire for marriage became obvious, and in a state of fear and panic, he suddenly severed all relations and came to New York City. This was the only woman of his own class to be associated with him. In New York City he became attached to a chemical manufacturing establishment. He showed an inventive genius, but as he was frequently intoxicated, he gave away many of his ideas without any recognition. He was advanced to a position of responsibility and for five years prior to his admission, his employer hired a man to supervise him and prevent his drinking, if possible. During his twenties he lived with a rowdy group of young single men whose behavior was in every way unconventional. In such a living arrangement he was very happy, but one by one his friends were married. He was lonely, and at the age of 30 he married suddenly an inferior woman whom he had known for only a few days. Within a week of his marriage, while heavily intoxicated, he went to his mother, and remembered that he wept on her shoulder. He was very unhappy with his wife, with whom he was impotent. They often quarreled and he frequently allowed himself to be beaten. Occasionally he consorted with prostitutes, but with no satisfaction, as he suffered from ejaculatio præcox. He continued to do excellent work, but he was

chagrined by a tremendous reduction in salary in 1929, the year before his admission; he felt there was sufficient cause to average a quart and a half of whiskey per day. On three occasions he was in general hospitals for the treatment of acute alcoholic intoxication. He became physically run down, showed marked restlessness, and talked of suicide. As usual, he went to his mother, who persuaded him to come to the hospital.

His physical condition was poor. He appeared many years older than the age of 40. He was undernourished, exhausted, and tremulous. The laboratory tests were essentially negative. Constitutionally he was of masculine build. Mentally he was discouraged but somewhat resentful of being under treatment. With an irritable and critical attitude, he told freely of his inebriety and his inability to cope with the impulse to drink.

The treatment was directed, at first, toward a physical rehabilitation. He was given a nutritious diet with abundant fluids. Daily massage and sedative baths were helpful in controlling the sleeplessness and tremulousness. For the first three months he was placed on a schedule which allowed two rest periods during the day. At no time in his life had he learned to play, and he was given instruction in golf, tennis and other competitive games. In occupational therapy he did excellent metal work, an activity which he carried as a hobby into his life out of the hospital. Reluctantly he undertook a psychoanalysis which began three months after his admission. He was typical of that unfortunate group who presents a beaten attitude toward life. In every sphere of his life he managed to deny or punish himself. This was carried into his treatment. With an opportunity to understand himself more thoroughly, he left the hospital at the end of a year, before his psychoanalysis was completed. He distrusted all physicians, as he had his own father, a physician who drank excessively and was most unsuccessful professionally. His father had frequently threatened him before the age of six. He was told of the dire consequences of enuresis and masturbation, both of which were problems with the patient. At six, he was told in detail of the lynching of a man who was guilty of rape. At an early age he was conditioned to be afraid of all sexual expression. Under analysis he had dreams of being castrated by his father. He also fantasied that his father attempted to cure alcoholism by forcing cotton through the alimentary tract of the patient with a ramrod. He had a dream of his nails being torn from his hands as a punishment for masturbation. Up to the age of 12 he had held to the infantile theory that the woman possessed a penis. As one would suppose, this was a denial of the possibility of castration, the unconscious fear from which he never recovered. At puberty he turned to homosexual experiences with his brother. The fear of his father and his strong mother attachment led to a feminine identification which strengthened his psychological passive homosexual alignment. He fled from a suitable heterosexual adjustment and married a woman of inferior station. His passivity and self-abasement in his work have been mentioned. At times he showed a real interest in the material he produced, but he learned very little of the deeper psychological problems and conflicts. He felt confident to manage his life before any of his difficulties were fully resolved, and he left immediately upon the expiration of his inebriate commitment. He did well in his work for one year, but again resorted to drinking.

Treatment.

When the subject of the treatment of patients with alcoholism is touched upon, a note of pessimism is usually sounded in all quarters, including psychiatry. The difficulties of management, the tendency to recurrence, and the downward course in so many cases, are the reasons given for such an attitude on the part of the profession. Yet in the realm of physical disease and certainly among the mental disorders of all types, the discouraging features of recurrence and chronicity are ever present. Such obstacles have always challenged the physician to greater efforts of intensive work and study, with the hope of curing or helping those so afflicted. Any other attitude on the part of psychiatrists toward the problem of alcoholism should appear indeed inconsistent.

On the other hand, the excessive use of alcohol over a period of years by an individual with instinctive and emotional conflicts, does produce a clinical picture somewhat different from that seen in a case of psychoneurosis or psychosis. The alcohol has helped to postpone any sort of solution of mental conflict. It has been looked upon as an aid and in many patients affords a false sense of security and temporary escape from unpleasant tensions. It is true that alcohol, in this alluring way, takes the individual farther away from early psychiatric treatment, whereas the mental suffering of the neurotic or psychotic patient, without the momentary solving or postponing effect of the drug, brings him to more immediate treatment. This fact is corroborated by the present study, when we consider that the average age to begin drinking was 18 and the average age on admission was 38. Thus a long period of time elapses during which the individual learns to depend upon and tenaciously adhere to the unhappy solution of his difficulties, and naturally results in the severe degree of physical and mental involvement we meet so frequently. Another feature which brings us to the consideration of management is the average period of hospital treatment for the group. The average period was 4 months and 26 days, about one-half the time spent by the psychotic or neurotic patient who fully recovers. The insufficient period of time for adequate therapy is offset by the inebriate commitment which more and more is insisted upon.

All the alcoholic patients and especially those with an organic mental reaction require careful physical treatment. This part of

the therapy centers around the principles of rest, increased nutrition and fluid intake, and proper elimination. The patient is taken off the alcohol immediately. Rest is secured through the simple measure of putting the patient to bed. Warm wet packs and prolonged baths are beneficial to those who are acutely overactive and disturbed. These methods of producing relaxation and sleep are found to be far superior to sedative drugs which oftentimes accentuate the existing toxic state. The diet should be rich in calories and an abundant fluid intake is most valuable. During the first few days the elimination is aided by colonic irrigations. Naturally the nursing care plays a significant rôle and the directing of these measures on the part of the psychiatrist is combined with reassurance, as the acutely sick patient is quite apprehensive. The same elaborate care is not required by the patient who is not reduced physically or in whom the alcoholism is not associated with an organic mental reaction. In any case, the response is very quick and the physical restitution is strikingly good when no permanent injury of the nerve tissue has occurred.

This early period offers a splendid opportunity for observing the unconscious material which comes to the fore in the trend of the acute organic reaction. The observations and notes made at this time by the hospital physicians are of inestimable value to the psychotherapeutic work which follows.

In the hospital, the patient follows a full schedule of physical, occupational and social activities. Competitive games are popular and strenuous physical exercise has a strong appeal; occasionally the idea of " sweating out the poison " is voiced by the patient who for weeks has been in apparently good physical condition. New interests in games and sports are created; many patients, for the first time in their lives, learn to play. The strengthening and toning effect are accomplished and in the course of his physical education, the patient's mental reactions are observed and studied with him. Situations of managing aggression in athletics can be related to unfortunate patterns of behavior in the daily life. As a group, these patients were prone to receive minor injuries such as head and face wounds in games and cuts with sharp tools in occupational therapy. These were explained superficially as accidents, but on further investigation with the patient, were found to have their origin in a self-punitive drive. The attainment of

improved muscular coordination in physical training builds up security and confidence.

Occupational therapy serves the useful purpose of engaging the patient's interest in constructive activities. As a group the patients prefer carpentry and metal work. Starting with wood in the rough and carrying it through to the completion of a piece of furniture is looked upon as a satisfying accomplishment. Metal and wood work appeal quite often, as the patients consider them employment of a masculine nature. The learning of crafts stimulates new interests and hobbies which, in the case of many patients, are continued after leaving the hospital. The ways of going about a task and the reactions to the instructor's advice and criticism afford many psychological situations for study of the patient's personality equipment.

The social life is made more pleasant through informal gatherings, card games, dances and concerts. Every effort is made to furnish a natural and wholesome environment, to which the patient adjusts without the use of alcohol for a period of months, preferably a year.

While directing these therapeutic measures, the psychiatrist is also working with the individual. Any physical conditions such as foci of infection are corrected. Any physiological difficulties such as digestive disorders and frequent colds, which have been used in the past as rationalizations for drinking, are dealt with in such a way as to teach the patient a way of future managing.

The psychiatric interviews are frequent and the benefit derived depends upon the interest and curiosity of the patient in working out his inner problems. The alcoholic patient frequently presents the baffling mask of a breezy, genial and social nature, which is misleading. With those patients who have accomplished things in life and whose relations to reality are for the most part strong and of an adult character, an attempt is made to penetrate the mask. Through perseverance and a knowledge of the underlying psychopathology, the psychiatrist aids the patient in acquiring an emotional insight. Three of the patients were psychoanalyzed. In addition to the individual benefit, much was gained in the contributions to the methods of study and treatment of others.

The reeducation program extends into the period of the patient's adjustment after leaving the hospital. Toward the latter part of

the hospital period, the patient is encouraged to visit his home and gradually resume his life's work. Absolute abstinence is insisted upon. Occasional but specified visits to a psychiatrist over a period of a year or more, are essential for the best results. In this guardian rôle, the psychiatrist plays the part of a sympathetic and understanding friend.

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STUDY OF A CASE OF CYCLIC PSYCHIC DISTURBANCES ASSOCIATED WITH MENSTRUATION.*

By WILLIAM A. HORWITZ, M. D., and MEYER M. HARRIS, M. D.

The physiological changes that accompany the menstrual cycle, although usually unassociated with any apparently marked untoward effects, may in certain cases be accompanied by severe disturbances. A careful study of these conditions may give one information regarding important physiological mechanisms. It is indeed possible, and one might safely say probable, that in some cases the disturbances observed are psychic in origin. There is strong evidence, however, that in others organic factors play an important rôle.

Brierre de Boismont,[1] in 1842, wrote an interesting monograph on the subject of menstruation in relation to the mental state. He pointed out that the menstrual period is frequently associated with various illnesses, feelings of animosity, self punishment, etc., for which the individual cannot account subsequently.

Icard,[2] in an extensive study of the literature regarding the psychic status of woman during menstruation, details the occurrence of various psychotic disturbances such as pyromania, dipsomania, homicide, suicide, nymphomania and others.

In 1912, Haffner [3] published an interesting and extensive article in which he reviewed the literature and reported clinical studies regarding the relation between menstruation and nervous and mental illness. It is unnecessary, therefore, to duplicate such a detailed review for the purpose of this paper.

In 1858, Schlager,[4] in an investigation on menses and psychoses, pointed out, among other things, that psychoses may show exacerbations during menses although very frequently no causal relationship exists.

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Sutherland,[5] as a result of a study of 500 cases, stated that although in the latter part of the 19th century the importance of menstrual disturbances as an etiological factor in the psychoses was questioned still he believed there undoubtedly were cases in which menses played a rôle.

Powers,[6] in 1883, outlined the following theoretic requirements for the so called "menstrual psychosis":

(1) The paroxysm must be regular and related to the menses.

(2) There should be free intervals between the paroxysms.

(3) There must be a characteristic psychosis and not merely ordinary mild disturbances occurring in nervous women.*

She also described "transition forms" as follows:

(1) Periodic forms which however did not always coincide with the menstrual periods.

(2) Periodic forms without free intervals but with exacerbations at the time of the menses.

(3) Abortive forms which occur with the menses but which do not reach the degree of a psychosis.

Hegar,[8] in 1901, was inclined toward the view that "menstrual psychosis" should be called "Wellenpsychosis" or "wave psychosis" since the menses constituted only the most apparent and tangible sign of the physiological wave-like changes which occur in women.

This broader view point is in keeping with recent knowledge of the hormonal changes in the body accompanying the menstrual cycle.[9, 10]

The effects of these hormonal changes are undoubtedly important in the pathogenesis of various disturbances reported as occurring with the menses in certain cases, as, for example, epilepsy,[11, 12] transient edema,[13, 14, 15] agranulocytosis,[16] etc.

It is questioned by some observers whether a menstrual psychosis as such exists.[17] They believe that the menses are merely a precipitating factor in the psychosis in a predisposed individual and in many cases the family history would tend to support such a view.

* Tobler [7] reported that out of 1020 women examined only 16 per cent felt as well as usual at the menstrual period. The others were usually unwell in some way and unenergetic, although there were some who were more energetic at this period.

This paper deals with a study of $2\frac{1}{2}$ years duration of a patient who since the age of $12\frac{1}{2}$ years had had recurrent attacks of psychoses which were related to her menstrual cycle.

Patient E. P., a $16\frac{1}{2}$ year old school girl was admitted to the Psychiatric Institute at the age of 14 (October, 1932), at which time she already had had repeated mental illnesses for one and one-half years, dating the onset of the present illness to the age of $12\frac{1}{2}$. The hereditary background is unfavorable in that her father had been psychotic and was twice admitted to state hospitals, once diagnosed "manic-depressive" and once "dementia præcox." He died of tuberculosis. One brother is in Sing-Sing, his third conviction. Another brother was formerly a behavior problem and had a court record for juvenile delinquency. One sister is a behavior problem and another is a stutterer.

When seven years old, the patient was observed to drop objects from her hand and to have involuntary movements of the right hand and leg. This lasted several months and recurred each year until she was 12 years old. At two hospitals this condition was diagnosed as Sydenham's chorea. Except for this, her past history was essentially negative.

Because of these repeated illnesses, she was made the favorite by her mother who pampered her. Nevertheless, she was energetic, cheerful, interested in school and active in play. Despite the annual illnesses which caused her to lose one or two months out of each school year, she passed her grades regularly and was in 9A at the age of 14.

At the age of $12\frac{1}{2}$ (January, 1931), six months after her last attack of chorea, she became mentally ill for the first time. She began to cry, worry about her studies and refused to go to school. She was depressed, retarded and afraid to leave the house. She sat in one place, did not talk except occasionally to answer a question and ate little. This condition lasted eight days. On the ninth she was well. She dressed herself, ate and spoke as formerly and eagerly returned to school.

According to the history of the mother and sister, these short, depressed, retarded states returned at about monthly intervals, each lasting eight days and promptly clearing up on the ninth. She had four such attacks before her first menstrual period at the age 13 years, at which time she had a fifth attack. From then on she continued to have similar short depressions with each menstrual period until the one just prior to admission to the hospital.

Up to this point she had had about 15 such attacks, recovering generally about the ninth day. In September, 1932, at the age of 14, she had her usual attack with the onset of a menstrual period but instead of recovering on the ninth day she became noisy and excitable. She awoke at midnight, rushed from room to room, switching the lights on and off. She ransacked the drawers, tore her clothing, struck and spit at her sisters and threw objects out of the window. For the next few days she talked incessantly, refused to remain in the house, and for four nights she did not sleep. She said that she had a large sum of money in the bank and wanted her mother to get it for her. She talked about a Tammany club leader, about Governor Roosevelt and

continued to read the names off an election poster across the street. This disturbed state lasted for an additional eight days, following which she recovered. She then remained well for more than two weeks and was referred to the hospital by a social service agency because of this previous disturbed episode.

When admitted to the hospital on October 18, 1932, she was cooperative and pleasant but within a few days she began to complain of headache and earache and became dull, listless and untidy in appearance. She became petulant, kept herself apart from the other children or picked quarrels with them. This behavior lasted for about two weeks until a day or two after her menstrual period when she quickly became excited, rushing about the ward, breaking the furniture, giggling and tearing her clothes. She was elated, laughed and sang. She again spoke of the prominent people she knew. She said she was wealthy and had imported expensive clothes. She had to be removed to the adult disturbed ward where she continued to scream and talk incessantly. Here she continued to express grandiose ideas, was distractible and showed a flight of ideas with rhyming and *klang*-association. A sample of her stream of thought in this disturbed state is: "You know me. I'm very happy. Mr. Maloney, you are a boloney. Mrs. Crane, you are insane. Mrs. Levy, you are a dandy, you brought me candy when I was in camp. President Roosevelt, I knew you'd win. I know Hoover—Jimmie Walker." This disturbed state lasted about two weeks. She then rapidly became quieter and in two or three days became respectful, obedient and cooperative but mildly depressed. After several days more she appeared completely well, *i. e.*, she was neat, played with the other children and attended school. This whole attack lasted four weeks.

Two weeks later she began another attack and since then these have recurred at intervals of two weeks to two months except during a prolonged period of thyroid therapy, during which time she was apparently well. In all, she has had about 30 attacks, including those prior to her entrance to the hospital. All the attacks, except the first four which had occurred before the catamenia were established, were associated with a menstrual period. Most of them began in the pre-menstrual stage, a few either during the period or a day or two after menstruation ceased. The onset was similar, being ushered in by prodromata consisting of a feeling of sleepiness, untidiness in appearance and complaints of headache and backache, this being followed by mild behavior disturbances such as silliness, flippancy and seeking of attention for various physical complaints. The prodromata lasted a few days and were replaced by a short period of depression followed by a disturbed, elated state of a few days or a few weeks duration. On two or three occasions the disturbed state did not appear and only the depression recurred. The menstrual periods occurred irregularly at intervals of two weeks to two months, each period accompanied by a psychotic episode.

Physical examination on admission revealed an individual of short, dysplastic habitus, resembling her mother and one sister in physical constitution. Complexion was pasty sallow with a mild acne of the face. Despite the history of repeated attacks of chorea there was no evidence of cardiac involvement. The rest of the physical examination was negative.

Urine and blood studies including a Wassermann test were normal. Glucose tolerance tests, 60 gms. glucose orally gave the following results:

June 6, 1930, fasting blood sugar = 89 mg./100 cc.

½ hr.	111
1 hr.	151
1½ hrs.	138
2 hrs.	136

April 27, 1934, fasting blood sugar = 97

½ hr.	170
1 hr.	195
2 hrs.	127

Blood cholesterol = 247 mg./100 cc. which fell to between 150 to 170 on thyroid medication.

X-ray of the skull showed large dilatations of venous channels, which were considered normal by the rœntgenologist.

X-ray of the long bones at the age of 15 years showed fusion of practically all the long bones.

Owing to the close relationship between the psychotic episodes and the menstrual cycles, the effect of the administration of available potent endocrine products known to be directly related to the sex cycle were observed. Any ameliorating or aggravating influence of such products upon the clinical course might give an indication of the particular hormone or hormones which were involved.

Antuitrin-S Administration.—Antuitrin-S (the gonadal stimulating hormone obtained from pregnancy urine) was administered hypodermatically in varying amounts (100 to 300 rat units daily) at three different periods as seen in the chart.

It is difficult to determine whether there was any effect upon the duration of the psychotic episodes since they were not all of equal duration. The nature of the psychotic episodes however remained essentially unaltered.

Theelin Administration.—Theelin was administered hypodermatically both before and during a psychotic episode in doses varying from 50 to 300 rat units as seen from the chart. This did not alter the nature of the attack. (It is intended to repeat the theelin experiments using larger doses of the hormone.)

Thyroid Administration.—Since the patient's basal metabolic rate ranged from — 14 per cent to — 34 per cent, three grains of thyroid were given daily over a period of two months. During this time the patient had a menstrual period accompanied by very mild psychotic symptoms. When the thyroid was discontinued the basal metabolic rate, which had risen to a normal level, again dropped to — 25 per cent and with the next menstrual period a severe disturbed state lasting about one month occurred. Ten to fifteen grains of thyroid daily administered during this disturbed state produced no beneficial effect. It was then decided to administer sufficient thyroid to raise and maintain the basal metabolic rate at a positive level. For six and one-half months an average of

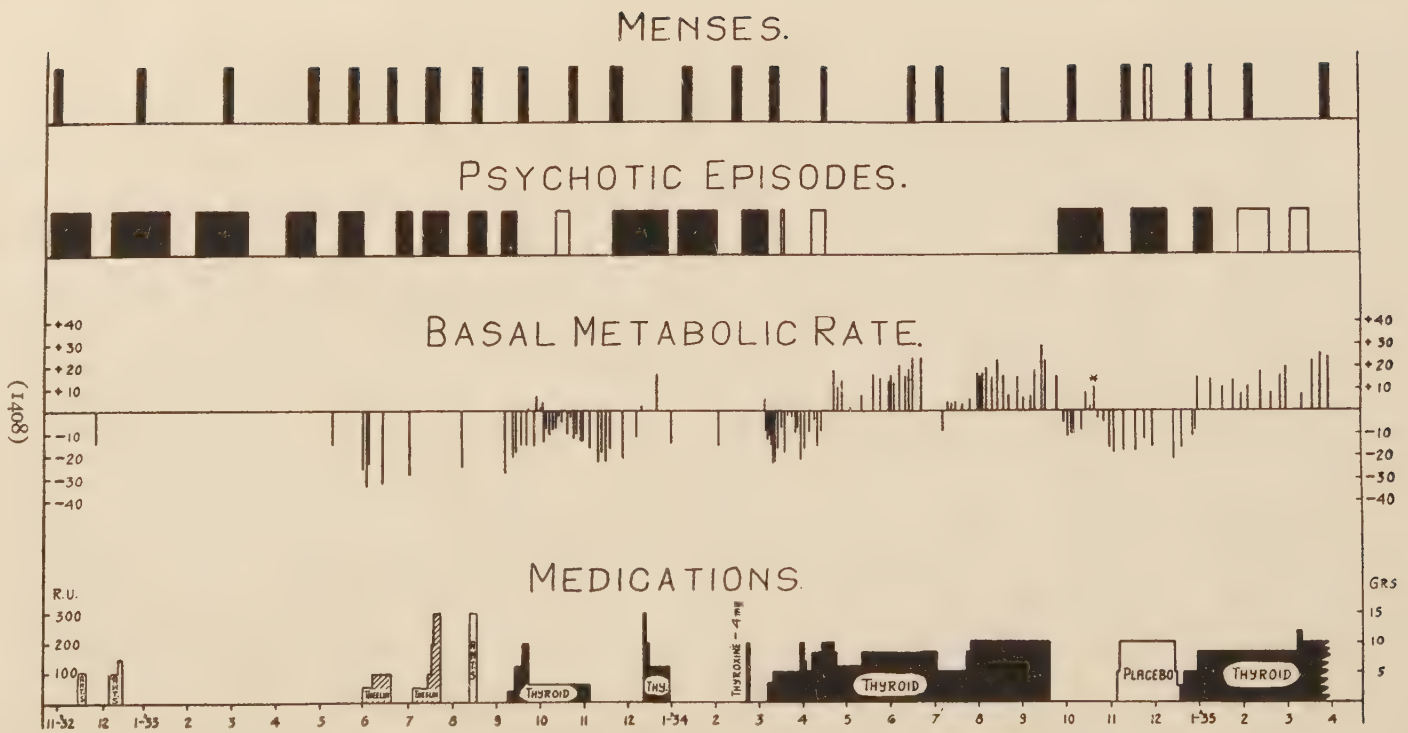

CHART.—Showing the Relation Between Menses, Basal Metabolic Rate, Medication and Psychotic Episodes.
(*Note.*—Clear rectangles indicate occurrence of only mild prodromal symptoms.)

eight grains of thyroid daily was given so that for the last four months of this period the basal metabolic rate averaged + 15 per cent. During this period of six and one-half months, patient had five menstrual cycles without a psychotic episode. At the end of this period, the thyroid medication was discontinued and the psychotic episodes recurred with the next two menstrual periods. During the second of these, she received tablets resembling thyroid as a placebo. Thyroid therapy was again instituted. The first menstrual period following the resumption of this therapy was accompanied by only a mild disturbed state lasting about 10 days. Since then, she has had four menstrual periods free from either states of depression or overactivity, only mild prodromal symptoms appearing at about the time of each menstrual period. The relationship between the medication, basal metabolism, menstrual periods and psychotic attacks are shown in the chart.

Discussion.

It has been pointed out by various investigators that a low basal metabolic rate does not necessarily indicate the presence of a hypothyroid state. We are inclined to believe that the low basal metabolic rates in our patient was probably not due to hypothyroid function since epiphyseal union had taken place at least at an early normal age period whereas one would expect an early hypothyroid state to be accompanied by delayed epiphyseal union.

The therapeutic effect of the administration of large doses of thyroid does not necessarily indicate the existence of a hypothyroid state but may merely represent a favorable pharmacological * action of the substance.

The family history of mental illness and perhaps the presence of chorea in early childhood point towards the possibility of some non-demonstrable organic bases for the psychotic episodes; the physiological effects due to the hormonal changes associated with the menstrual cycle producing this disturbance in mental function because of the organic involvement. However, the possibility that the mental disturbances may be due to some endocrine dysfunction, perhaps of the pituitary, should be kept in mind.

How the large doses of thyroid bring about the ameliorating effect requires further investigation.

* It may be well to keep in mind the possible rôle of antithyrotropic hormone to account for the low basal metabolic rate.

Summary and Conclusions.

1. A study of two and one-half years duration of a patient having psychic disturbances related to the menstrual cycle is reported.

2. Antuitrin-S and theelin administered hypodermatically in various amounts and at different periods did not appear to influence the nature of the mental disturbance.

3. Continued oral administration of large doses of thyroid brought about a marked amelioration in the clinical picture with freedom from psychotic attacks.

4. Discontinuation of thyroid administration and substitution of placebos was followed by a return of symptoms which disappeared on further thyroid treatment.

5. The significance of the effect of thyroid administration is discussed.

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DISCUSSION.

Dr. R. G. Hoskins (Boston, Mass.).—I should like to ask the reader whether he made observations on the quantity of urine during the periods when favorable therapeutic results were obtained, and when not, and on the total nitrogen in the urine. This is a subject that we have been interested in for a number of years. In the Worcester State Hospital we have tried to determine what are the significant indications prognostic of favorable results from thyroid medications. In our experience the chief favorable indications consist of a relatively scanty urine, relatively scanty total urinary nitrogen, usually constipation, commonly a mild secondary anemia and, of course, a depressed oxygen consumption rate. I wonder to what extent Drs. Harris' and Horwitz' experience conforms with ours.

Dr. Lloyd H. Ziegler (Albany, N. Y.).—I wish to ask a question and also to contribute just a bit of observation about some patients that were somewhat similar. I should like to ask if the temperature of the patient was taken regularly, also whether any special note was made of the respiration rates. Could one consider stimulating respiration as a therapeutic method equivalent to giving thyroid?

I have observed in four or five girls, especially in the five or six months before the onset of their menses, that they would have some kind of psychotic episode at monthly intervals, corresponding to the date when the menses should appear. These disappeared after the menstrual periods had become well established, and so far as I know such episodes did not reappear later in life. These patients behaved not unlike the patient described by Dr. Harris and Dr. Horwitz, except that the disturbance lasted only a day or two and was characterized by a feeling of anxiety about something that wasn't very certain, a rather outstanding restlessness, and a tendency to giggle or laugh sometimes.

Dr. Meyer M. Harris (New York City).—I am sorry that I have not the figures here to answer Dr. Hoskins' question, but there were a number of studies made in regard to hormones, urinary output, and so on. The difficulty encountered in these studies was that at the periods when we were most anxious to obtain total collections, we were frequently unsuccessful because of the disturbed and uncooperative condition of the patient. We discontinued the studies of hormone excretion for that reason. However,

there were several periods when the hormone excretion was studied, but we have not the figures to give them to you at this time. As far as I can recall nothing very unusual was observed.

In regard to the endocrine therapy, it is a fairly well known fact that thyroid may be effective therapeutically because of its pharmacological action rather than its endocrine effect; that is, the effect is not due to a replacement of a deficient supply of the hormone. There is no evidence of thyroid deficiency in this case so far as we can tell. It is still a question, however, whether in a case like this one has treated a thyroid deficiency or has simply obtained a favorable pharmacological effect. This consideration has been a point of main interest to us and will be a subject for further investigation. The case is still under observation.

The first part of the study was concerned, as was quite obvious, with an attempt to gain some insight into the mechanism of the relation of the menstrual cycle to the psychotic period. Attempts were made to gain information on this point by the use of some of the hormones by determining whether they would precipitate, break up, or prevent an attack.

The second part of the study was in relation to the low basal metabolic rate. A discussion of the complicated relation of the thyroid to the metabolic rate would not be permitted by the short time at my disposal.

The question in regard to allergy is something which one must consider. I don't know whether it is an allergic state wherein the thyroid administration has produced a favorable pharmacological effect. I am not inclined to believe, however, that we are dealing with an allergic phenomenon in the case presented.

INFANTILE AMAUROTIC FAMILY IDIOCY.

With Megalocephaly and Cerebellar Atrophy.*

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The outstanding clinical and pathological features of amaurotic family idiocy are well known to every neurologist and neuropathologist, and reports continue to appear at regular intervals in an already profuse literature. New cases, when carefully studied, are nevertheless an increment to our knowledge of this subject. Although the case which is herewith submitted undoubtedly belongs to the Tay-Sachs infantile group, it presents a number of distinctive features which merit discussion and analysis. In the first place, it is unique because the cerebrum, which weighed 2300 grams, is probably one of the largest brains reported in this disease. In contrast, the cerebellum is found to be exceedingly small, a condition which further serves to break down certain arbitrary boundary lines between the true infantile form and the type described by Jansky [1] and Bielschowsky.[2]

Secondly, on the clinical side there were manifested the tonic phenomena which simulate the picture of experimental decerebrate rigidity which Hassin [3] regards as of diagnostic value.

Thirdly, unlike the situation in most cases, this child was never emaciated but continued to grow in height and weight to the very day of his death.

Lastly, along with the brain, the eye and optic nerve were obtained at autopsy, making it possible to study the pathological picture of the entire visual system from the retinæ to the striate cortex.

Case Report.

The patient was born of a Polish-Jewish father, age 30, and a Lithuanian-Jewish mother, age 29, not related. A rather comprehensive genealogical study through four generations was made of 114 individuals on the paternal side

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and 54 on the maternal. Of these 168 blood relatives, none presented a history or objective evidence of anything suggesting amaurotic family disease. On the paternal side there was found a trend toward malignant hypertension in the older groups and some presenile diabetes, but these elements were probably no more dominant than they are in the average Jewish stock.

The boy, an only child, was born December 29, 1931; there were no difficulties during delivery. The natal weight was about 7½ pounds and the height was 50 centimeters. He was breast-fed and had supplementary feeding of certified whole milk and dextro-maltose. During the first six months growth and development appeared to be normal in all respects. At four months he was able to sit up without being propped, he controlled his head without difficulty and dentition came on in regular order.

Not until he was about 10 months old was it evident that normal development was halted. He could no longer hold up his head, he could not sit up, and he did not reach for his toys or food. The postural defects continued to be more pronounced; there now developed a generalized hypotonia of such degree that a diagnosis of birth injury to the cerebellum was made.

At 19 months the cherry-red spot in the maculæ and optic atrophy were detected, thus making the diagnosis. By this time the general hypotonia gave way to reflex excitability, such as facial myoclonus, spasm of the larynx and trismus of the jaws. Noises startled him, bringing on cyanotic attacks and generalized extensor tonus. There was little or no voluntary activation, and the child lay passively on his back, occasionally giving forth a feeble outcry when the head or limbs were manipulated. The head, which was rapidly enlarging, was held in slight extension, the left arm alone being slightly flexed at the elbow. The hands were tightly clenched. All tendon reflexes were symmetrically hyperactive, the abdominals were not elicited, and the plantar response was a slight flexion of all toes. The pupils were dilated and there was an internal squint and spontaneous nystagmus. Keeping in mind the observations of Hassin [3] and Van Bogaert,[4] who studied tonic reflex reactions in amaurotic family idiocy, attempts were made to demonstrate true Magnus-DeKleijn phenomena. Rotating the head to the left caused only a feeble extension of the slightly flexed left arm, but no appreciable reaction in the limbs on the contralateral side. Turning the head to the other side made little or no difference in the postural formula, and the general appearance suggested the generalized extensor tonus of the experimentally decerebrated cat. Since these responses did not satisfy the postulates laid down by Walshe for true decerebrate rigidity in man, the reactions were looked upon as being atypical but suggestive.

Although the fontanelles closed normally at 18 months, three months later the sutures began to widen, and the head rapidly enlarged so that from the 21st to the 29th month the circumference of the skull increased from 20¾ inches to 23½ inches. The cranial bones in rœntgenograms were found to be very thin and the parieto-occipital suture gaped widely. To make certain that this condition was not an obstructive internal hydrocephalus, block tests were performed and dye injected into the ventricles was recovered at the lumbar

locus within 18 minutes. The spinal fluid pressure was 22 mm. of mercury. The cell count was normal and the protein content was not increased.

In spite of all this the boy continued to gain weight and to grow in height. At no time did he show evidence of malnutrition, and dentition was not retarded. Only on one occasion was there noted a true convulsion, but facial twitching, spontaneous nystagmus, cyanotic attacks, sensitivity to noise and generalized hypertonus continued to the time of death. Feeding in the last two months became increasingly difficult because of the jaw trismus. From the 19th month, blindness was complete, and the patient lay motionless with the enormous head in slight extension, except when overwhelmed by spontaneous tonic movements. He expired with the symptoms of broncho pneumonia on June 4, 1934, at the age of 29 months.

Summary.

The patient was a Jewish infant, in whom normal development up to six months was interrupted by a progressive atonia and visual impairment. This was succeeded by myoclonic excitement at 15 months associated with generalized extensor hypertonus. Only one true convulsion was noted. There was no severe malnutrition at any time. At 19 months he was totally blind and the cherry-red spot was found in the retina. From the 21st month the head increased enormously in size. Death occurred in the 29th month.

Pathological Examination.

The organs, exclusive of the central nervous system, revealed no striking changes. The liver and spleen were not enlarged and there was no histological evidence in these organs of lipoid histiocytosis. The anatomical diagnosis of the internal organs is as follows: bilateral bronchopneumonia; acute tracheobronchitis; follicular hyperplasia and focal necrosis of the spleen and lymphoid hyperplasia of the ileum. (Dr. M. A. Simon.)

Brain and Meninges.—The dura was thickened, tense, adherent to the calvarium, and when cut released a considerable amount of slightly blood-tinged fluid. The leptomeninges were thickened, cloudy, edematous and not adherent to the cortex. Considerable fluid escaped from the subarachnoid space. The fresh brain weighed 2300 grams and was of rubbery firmness in consistency. The basilar blood vessels were collapsed, the cortical vessels moderately hyperemic. At the base the thin-walled third ventricle protruded ventrally, pushing the optic chiasma before it. The optic

nerves appeared atrophied. The convolutions were prominent with accessory folds and fissures which varied in size and produced a distorted architecture. (Fig. 1.) The sulci were very deep, gaping in general, especially at the Sylvian fissure. The cerebellum weighed 115 grams. It was quite small, compared to the rest of the brain, and showed a universal atrophy of the folds. The pons and cerebellar peduncles were small and flattened. Coronal sections of the brain revealed only moderate dilatation of the aqueduct and cerebral ventricles. The brain cut in a rubbery fashion and the white colored cortex on cut section stood out from the softer atrophic grey-colored white matter. The greatly thickened cortex measured on an average three to four millimeters in diameter. Vascular points were prominent on the cut surface.

Eye and Optic Nerve.—The posterior half of one eye was removed for examination. Grossly, the optic nerve was atrophied and grey in color. The macular region was greatly raised above the surface of the retina and appeared as a yellowish ovoid structure, 5 mm. in diameter, with an elevated margin and a pit-like depression in the center at the fovea. The yellowish color disappeared after fixation in formalin.

Histological Examination.

Representative areas of the central nervous system were stained by standard methods to demonstrate nerve cells, glia cells, myelin sheaths, neurofibrils, gliafibres, fat and collagenous and argentophilic connective tissue. Special stains for lipoids were not made for this report. The eye was embedded in both gelatin and celloidin and cut in serial sections for the study of the changes in the macula lutea.

Because of special interest, the changes in the cerebellum and the visual system will be described separately.

The leptomeninges were thickened in all regions with a loose proliferation of fibroblasts. These contained fibrils which stained with both the Van Gieson and tannin silver stains but the amount varied in different regions and showed no correlations with each other. The pial blood vessels were widely dilated and exhibited some thickening of the adventitia. In the meshes of the pia-arachnoid, round cells, red blood cells, immature macrophages or other cells of meso-

thelial type and especially *gitter*-cells were present. Many of the *gitter*-cells contained black pigment granules.

The ganglion cells throughout the central nervous system were changed in the manner characteristic of this disease. (Fig. 2.) This consists essentially of ballooning and distortion of the cell body or cell dendrites or both, with a complete loss of Nissl granules. In some cells a remnant of the Nissl substance broken into dust-like particles may persist around the nucleus. The nucleus may be displaced into the edge of the cell or into the origin of a dendrite, and the major portion of the cell is filled with lipoid material enmeshed in the spongioplasm. The lipoid is thought to be a lecithin or a phosphatid-like substance.

In the cortex the architecture was greatly distorted, due to a varying degree of cell defect not only in different regions but in different layers of the same region. In the extracortical regions a severe cell loss was present only in the lateral thalamus and pulvinar. The degree of lipoid accumulation was less marked in the substantia nigra and the nucleus supraopticus than in most of the other cell groups. Ballooning of the apical dendrites was a prominent feature in the pyramidal type of motor cell in the cortex and in the stratum lucidum of Ammon's Horn.

The fat staining reaction of the lipoid in the ganglion and glia cells demonstrated the different color tone emphasized by Spielmeyer,[5] that is, a light rose red in the ganglion cells and some fixed glia cells, a deeper red in the *gitter* cells, and the deep-red reaction of neutral fat in the small capillaries and blood vessels. The lipoid stained intensely black with iron hæmatoxylin in some regions (*i. e.,* Ammon's Horn). This was most striking in the Spielmeyer myelin sheath stain on frozen sections.

The glia cells in the Nissl stain were present in increased numbers everywhere and many varieties of progressive forms especially protoplasmic macroglia were abundant. Neuronophagia of ganglion cells was a striking picture in the post-central gyrus, but also occurred abundantly in the frontal and parietal cortex.

The cortex in all regions was almost completely demyelinized. The affinity of the lipoid for iron hæmatoxylin in the ganglion cells gave a curious reversal of the normal myelin sheath picture. The tracts in the nervous system which retained to the greatest degree their myelinization were the posterior columns and medial lem-

niscus, the fasciculus solitarius, the olivo-cerebellar tract, the dentato-rubral cerebellar pathways, the posterior longitudinal bundle, the lateral lemniscus, the tectospinal tracts, the fasciculus retroflexus and a part of the retrolenticular segment of the internal capsule. All other tracts were almost completely demyelinized, especially the pyramidal tracts; the spino-cerebellar and spino-thalamic tracts were somewhat less affected.

In silver preparations the axis cylinders were found to be intact where the myelin fibres were preserved. In the cortex, a marked reduction of neurofibrils, especially the tangential fibrils, was present. In addition, the ganglion cells showed displacement of the neurofibrils to the edge of the cell by the lipoid, and argentophilia of the nucleus. Fragmented, granular changes of the fibrils were present in some cells. In places the fibrils were thickened and nodular. In general, the axis cylinders were better preserved in a given area than the myelin sheaths.

Gliosis of the entire central nervous system was marked, especially in the cortex, thalamus, basal ganglia and central grey matter of the pons. In addition the well-known border gliosis of the molecular layer of the cortex and along the sub-ependymal regions was observed. The gliosis in the cortical grey matter was irregular, very dense, and consisted of both thin and coarse fibres.

Giant astrocytes with course fibres dominated the picture in the sub-cortical white matter, although deeper in the white matter isomorphous gliosis of the degenerated tracts became prominent. There was no remarkable glial reaction around the blood vessels. The glial fibrosis was considered a replacement phenomenon.

The mesodermal tissue reacted weakly to the degenerative process. In the white matter many large blood vessels were surrounded by a wide court in which the proliferated adventitia rested. The adventitia was infiltrated with fat-laden *gitter*-cells, this being interpreted as evidence of degeneration of the surrounding tissues. In general the larger blood vessels were dilated, and the capillary bed was rich. Both collagenous and argentophilic connective tissue occurred in the blood vessel and capillary walls in all regions.

The changes in the cerebellum were of especial interest. It could be seen in the Nissl stain that no external granular layer was present, that the granular layer was very thin and that the Bergmann glia cell layer had proliferated to form a dense layer of glia cells

(Fig. 3.) The Purkinje cell layer showed a marked loss of cells and the Purkinje cells present were greatly filled with lipoid which extended into the dendrites in the molecular layer. An occasional Purkinje cell undergoing neuronophagia was present. *Gitter*-cells were abundant in all layers, especially in the granular layer. The molecular layer was not apparently atrophied. Lipoid could be seen in the Bergmann glia cells. The lipoid stained similarly to the reaction seen in the cortex in the fat stain. The glia nuclei in the white matter were abundant. The ganglion cells of the dentate nucleus were filled with lipoid, over half of the cells either having dropped out or, if present, appearing as an empty space with a faint blue stained homogeneous nucleus. The Bielschowsky stain showed the morphology of the Purkinje cells with their lipoid-filled, distorted cell bodies and dendrites. (Fig. 4.) No argentophilic bodies such as those described by Samoza [6] and Santha [7] were observed. The neurofibrils were pushed to the edge of the cell by the lipoid and the nuclei were argentophilic as a rule. The nodular swelling of the axon consisted of a grey-stained, homogeneous substance with the neurofibrils interlacing over the surface. This was often associated with a bipolar splitting of the axon which finally looped back to the Purkinje cell layer. The mossy and climbing fibres had practically disappeared, as well as most of the fibres belonging to the basket cells. Few myelinated fibres were left in the cortex of the cerebellum, more being present in the vermis than in the lateral lobes. The fibres emerging from the dentate nucleus were much better preserved and could be followed through the brachium conjunctivum to the red nucleus. (Fig. 5.) Therefore, we deal with a centripetal degeneration of afferent fibres, and a centrifugal degeneration of efferent fibres down to the dentate nucleus. The Holzer glia fibre stain revealed extensive border gliosis and an isomorphous gliosis at right angles to the edge of the lamella down through the granular layer where it became anisomorphous in the white matter.

In the eye only the optic nerve and retina revealed pathological alterations. The retina disclosed a marked loss of ganglion cells, those still present being filled with lipoid which had the same staining reaction to fat as the cells in the cortex. The proliferation of glia cells and fibres in the nerve fibre layer had replaced the degenerated axis cylinders. The layer of rods and cones and both nuclear layers were intact. In the region of the macula, the external nuclear

layer was not disturbed in contour but the internal nuclear layer was pushed forward by a marked thickening of the Henle fibre layer which was frayed out into a loose reticulum made up of glia fibres. (Fig. 6.) The Bielschowsky stain showed a marked loss of nerve fibrils in the nerve fibril layer and a reduction in other layers. The inner reticular layer was somewhat thickened. The changes described produced the elevation of the macula seen grossly and were due to both edema and gliosis of the outer reticular and Henle fibre layer. This explains the white ring in the macula surrounding the fovea centralis ophthalmoscopically.

The optic nerve bundles were atrophied and surrounded by a marked thickening of the pial sheath and trabeculæ between the nerve bundles. The pia-arachnoid was proliferated obliterating the subarachnoid space between the nerve and thickened dural covering. The nerve bundles were decreased in size and diffusely demyelinated to a moderate degree, especially in the central portion of the nerve. There was likewise a reduced number of axis cylinders and the nerve bundles contained an increased number of glia nuclei as well as irregularly arranged glia fibres. Blood vessels in the nerve were not abundant. The external geniculate body was practically devoid of ganglion cells with subsequent demyelinization of the optic radiations. This would indicate that the central visual system had undergone a greater degree of degeneration than was present in the eye and optic nerve.

Comment.

The recessive character in the transmission of amaurotic family idiocy maintained by Spielmeyer,[8] Halbertsma and Leendertz,[9] Sjorgren,[10] Sachs,[11] and others may apparently outcrop by the accidental occurrence of the same germ plasm defect in two families otherwise free of the disease as is suggested at least theoretically in this case. The disease was dominant in the family reported by Van Bogaert, Sweeerts, and Bauwens.[4] Cases reported by Sachs,[11] Pounders,[12] and Lebbetter [13] also prove that it may occur in non-Jewish stock. It has been reported in a Spanish family (two cases) by Santiago,[14] and among the Japanese by Cordec and Horner [15] (two cases), and by Mayeda and Kitamura [16] (one case). Stewart [17] observed the disease in two generations of a family.

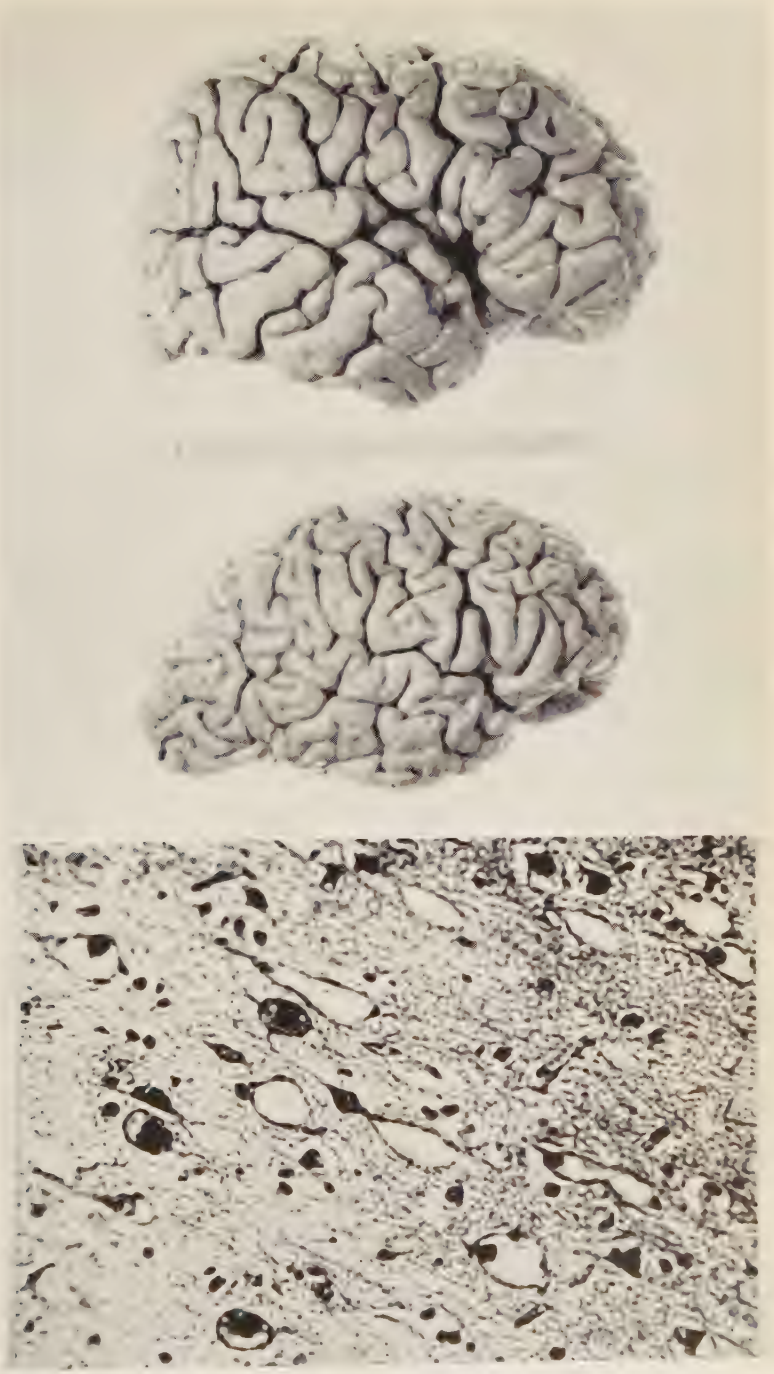

FIG. 1.—Above: Brain of Patient. Below: Normal Adult Brain Weighing 1350 Grams. Scale = 6 in. (15 cm.).

FIG. 2.—Section of the Cerebral Cortex Showing Typical Swelling of the Ganglion Cells and Processes With Lipoid. Nissl Stain × 266.

FIG. 3.—Cerebellum. The Section Shows Diffuse Thinning of the Granular Layer, Loss of Purkinje Cells, and Proliferation of the Bergmann Glia Cell Layer. Nissl Stain × 50.

FIG. 4.—Purkinje Cell With Ballooning of the Cell Body and Dendrite With Lipoid, Axonal Swelling, and Loss of the Mossy, Climbing, and Basket Cell Fibres. Bielschowsky Stain × 266.

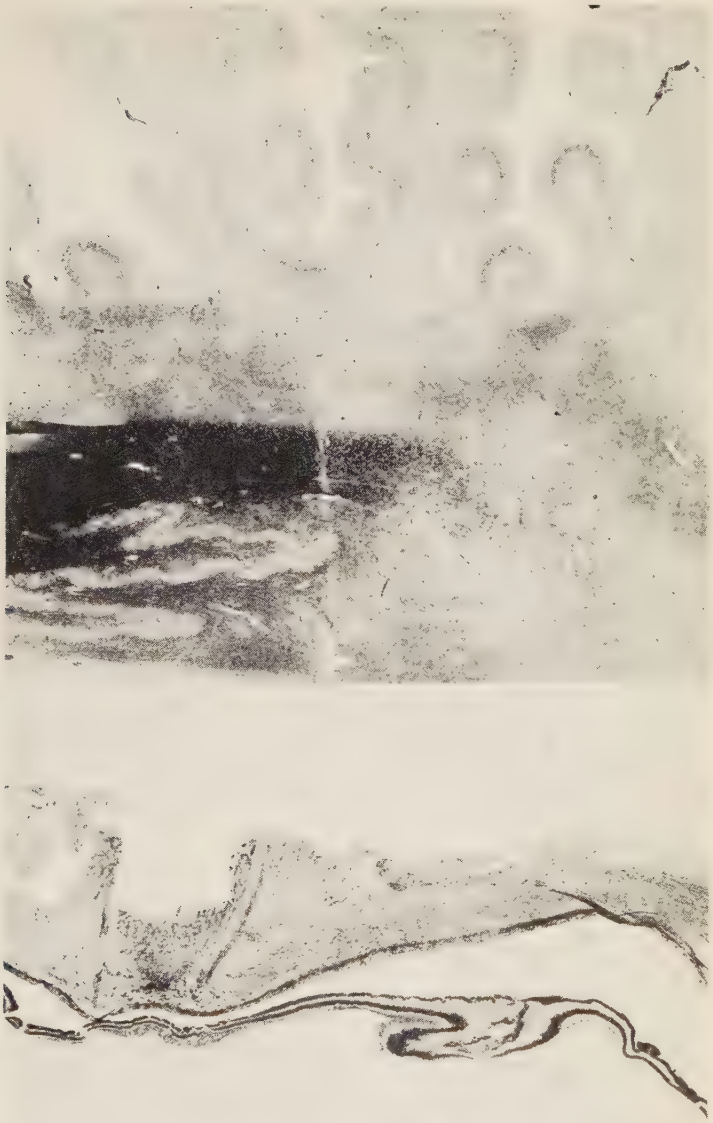

FIG. 5.—Cerebellum Almost Completely Demyelinized With Sparing of Fibres Emerging From the Dentate Nucleus. Spielmeyer Myelin Sheath Stain × 8.

FIG. 6.—Retina. The External Nuclear Layer is Intact, the Internal Nuclear Layer is Pushed Forward by the Thickened Henle Fibre Layer in the Region of the Macula. Nissl Stain × 12.

The pathological examination suggests several topics of interest. The brain weight of 2300 grams is larger than the 1690 gram brain studied by Bielschowsky [18] which was the greatest brain weight recorded that we could find.

The ganglion cell degeneration in the cortex varies tremendously in different regions in different cases reported, so that conclusions drawn from architectonic studies, as for example those made by Vogt [19] and Inaba [20] are contradictory and cast doubt on Vogt's theory of pathoclisis in the cortex as an explanation for the local vulnerability of given cell groups. Likewise the tract degenerations throw little light on the question of local vulnerability as the posterior columns are well retained in this case, although phylogenetically younger than the spino-thalamic tracts which are degenerated. It is true that many old structures of the brain stem and medulla are preserved such as the posterior longitudinal bundle, the olivocerebellar tracts and the fasciculus retroflexus. The lateral thalamus is degenerated, as was true in Hassin's [21] infantile case, but the picture in the medulla is quite similar to his late infantile case. It seems logical to agree with Schaffer [22] that in general the myelin degeneration follows the cell groups most severely injured and conforms to no arbitrary classification. However, one cannot dogmatically deny that there is also an arrest of myelin development in some areas. Bielschowsky [23] and Ostertag [24] have assumed that a developmental arrest of myelinization occurs as a result of a defective trophic function of the glia interfering with its ability to form myelin and to carry on lipoid metabolism. The consideration of the disease from the point of view of the lipoid metabolism offers a more sensible approach to the question of both the etiology of the disease and the delineation of clinical and pathological types.

In Tay-Sachs disease the cerebellar degeneration seen here is not frequent but has been observed by Westphal,[25] Bielschowsky,[26] Globus,[27] Dollinger,[28] and Ostertag.[24] The intensity and duration of the disease process probably accounts for the degree of degeneration. The lack of destruction of the dentate nucleus and the dentato-rubral fibres is similar to the observation of some of the cases of cerebellar atrophy studied by Scherer [29] and indicates that the atrophy of the cerebellar cortex is primary. A cerebello-fugal atrophy in the sense of Bielschowsky may have been present earlier in the disease, but the process was advanced beyond that stage at

the time of death. This case tends to break down Jansky's classification of a cerebellar type.

The changes in the retina agree with the observations of Szymanski,[30] Mohr,[31] Poynton, Parsons and Holmes,[32] and others. Most observers explain the macular thickening on the basis of edema but there is an increased gliosis of the Henle fibre and outer reticular layer as well in this case. However, this gliosis may be a reactive phenomenon to prolonged edema. Bielschowsky [23] expressed the opinion that the changes occurring in the calcarine cortex may cause the loss of vision. A similar idea may also apply to the external geniculate body because in this case the degeneration in the lateral geniculate body and optic radiations is greater than that of the optic nerve.

We have purposely omitted lipoid studies in this report as well as avoided entering into the arguments now ensuing concerning the etiology of this condition from the metabolic point of view. There are many problems that the morphologist cannot solve in this disease and it is hoped that concerted effort on the part of the clinician, biochemist and neuropathologist working together will be rewarded with their solution in the future.

Summary.

1. A case of amaurotic family idiocy was studied clinically and pathologically.

2. Clinically interesting tonic and decerebrate phenomena were observed in addition to the retinal changes.

3. Pathologically, megalocephaly, cerebellar atrophy and the changes in the retina were described.

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THE VALUE OF INSULIN TREATMENT IN UNDERNOURISHED PSYCHIATRIC PATIENTS.*

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Undernutrition in psychiatric patients is frequently an important therapeutic problem. Many factors operate at the same time in producing malnutrition in the psychotic patient. Good psychiatric nursing, high caloric diet, forced feedings, etc., are often insufficient. We have found insulin therapy a useful adjuvant in producing weight gain. This physical gain often operates to change the course of the psychosis or to hasten recovery.

The value of insulin in malnutrition has been expressed by several authors. However, its use in psychiatric patients has not been extensive enough to establish its importance and of late there has been some conflicting opinion as to its actual value.

About one year after Banting and Best [1] made the valuable contribution to medicine on the internal secretion of the pancreas, Pitfield,[2] Marriott [3] and Barbouri [4] made successful use of insulin in infantile malnutrition. Falta [5] in 1925 was the first to describe the use of insulin in cases of adult malnutrition and was enthusiastic about the enormous appetites the patients would develop upon increasing insulin dosage. Appel, Farr and Marshall [6] reported in 1928 33 cases of markedly undernourished psychotic patients that failed to gain on the usual fattening régime. They noted a definite improvement of 20 per cent after insulin treatment and felt at that time that it was a definite therapeutic aid in this particular problem. In 1929 [7] they reported an average gain of 3 pounds per week in their male patients. Their patients not only held their weight, but increased it in the majority of cases after discontinuing insulin. Their female patients gained nine-tenths of a pound per week on a fattening diet prior to insulin therapy and thereafter averaged 2.4 pounds per week. These investigators noted that the gastrointestinal function seemed to be improved and that the dry, gray,

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flabby skin took on a flushed, healthy appearance with an improvement in turgor and in many cases a rejuvenation of the entire body. They found that the more uncooperative patients required careful supervision. They used large doses of insulin and blocked off their period of treatment into three- and four-week periods, figuring their results on this basis.

Barker [8, 9] very definitely believes that insulin therapy is of great value in undernutrition of psychoneurotic and mildly psychotic patients. He found improvement not only in bodily strength of the patients, but also in mental and nervous states. He was very much interested to watch an anorexic patient change to a bulimic patient, stating that the change may occur in 24 hours.

Nichol [10] studied the late results in 63 patients and found that 48 made weight gains from insulin, ranging from 5 to 30 pounds. Of these 48 patients, 23 maintained their gain three months or less, eight as long as six months, seven patients kept their gain one year, three kept their gain three years, one four years, and six cases were not followed.

Freyberg [11] in 1935 failed to substantiate the view that insulin is a valuable adjunct in the treatment of undernutrition. He concluded that when undernourished patients were injected with insulin and its effects noted separately from diet and suggestion accompanying the injections, the great majority of the patients failed to show any response. He believes that much of the benefit attributed to insulin therapy is psychic.

In a subject as complex as malnutrition in psychiatric patients, the physician must consider all factors. The patient may be constitutionally asthenic, or limiting his food intake or be on an inadequate diet; there may be an increased energy expenditure, poor assimilation or an elevated rate of organ metabolism. The use of an adjuvant such as insulin, when its effect in normal physiologic and pathologic conditions is not well understood, is therapeutically difficult to evaluate. We should interpret results through control of all the factors rather than through any one isolated factor.

In our study of the value of insulin therapy we have taken 25 underweight psychiatric patients (9 males and 16 females) who have been given insulin and compared their weight gain with 25 patients (13 males and 12 females) on ordinary fattening diets,

but who have had no insulin medication. The ages varied from 15 to 70 years. All patients were undernourished according to their normal weights. The weights ranged from 83 to 168 pounds. The groups included both psychoneurotic and psychotic cases, the majority belonging to the latter group. All patients had an intact carbohydrate metabolism. All weight loss factors were controlled as much as possible. The patients were all ambulatory and participant in regular psychiatric ward activity. Observations as to the general condition were made daily during the treatment. The weight of each patient was recorded every three days. The diet was essentially the same in all cases, the total caloric intake maintained at about 4000 calories, with forced fluid intake in the summer time of about 3000 cubic centimeters. Extra lunches and high caloric liquids were given between meals. We employed the principle that the combating of insulin shock depends more on the frequency of carbohydrate administration than on the total quantity of carbohydrates.[12] Proper bowel regulation was controlled by lactose and psylla seed medication where necessary. Mineral oil and related drugs were not given, as we feel that laxatives interfere with absorption of food in undernutrition.

Insulin was usually given 15 to 20 minutes before meals, twice or three times daily. The initial dose was usually 5 units, increased to 10 units and 15 units if the patient's weight gain was not satisfactory. We did not employ as large doses as some investigators because with large doses prolonged storage of insulin has been demonstrated.[12] We prefer to avoid insulin shock if possible, and only one such reaction occurred in our series.

The patients receiving insulin therapy were definitely a more difficult group to handle from a psychiatric as well as a general medical standpoint. They included severe depressive and schizophrenic cases who had steadily lost weight previously. The more malnourished and those who resist feeding naturally are the group where insulin therapy is needed.

The 25 cases receiving insulin made a total gain of 283 pounds, an average gain of $11\frac{1}{3}$ pounds per patient. This group had 1807 hospital days and averaged a gain of 1.09 pounds per week. In the control group, without insulin under the same conditions, a total gain of 173 pounds, $6\frac{1}{2}$ pounds per patient, in 1797 hospital days was made, an average gain of .673 pounds per week. The

cases treated with insulin gained .42 pounds per week more than the cases treated under the same conditions without insulin. As we stated before we did not block our treatment into experimental periods, but figured our results on the basis of total days in the hospital. If we figure the total number of days that the patient actually received insulin, *i. e.*, on the basis of the total number of treatment days, which was 1240, we find that the average gain of patients receiving insulin was 1.59 pounds per week. Female patients studied separately show an average gain per week on the basis of total hospital days of 1.099 pounds; on the basis of total days of actual insulin treatment, they gained 1.615 pounds per week. The average gain among the female patients on the basis of total hospital days is .696 pounds per week. Male patients showed an average gain per week of 1.089 pounds when figured on the basis of total hospital days; when figured on the basis of total days of treatment, they average 1.557 pounds per week. Patients not receiving insulin made on the basis of total hospital days an average gain per week of .651 pounds.

The psychiatric reaction types of those receiving insulin therapy were: 13 manic-depressive states, including reactive depressions and involutional depressions. In this group were our more severe states of malnutrition; most of these patients had hypochondriacal delusions. Two patients showed almost pure schizophrenic reaction types. Four patients were essentially of the psychoneurotic reaction type with marked undernutrition. Four patients were classified as toxic infectious psychosis, one chronic invalid state with profound hypochondriasis and morphinism and one markedly undernourished senile psychotic. Twenty-two of these patients were discharged as improved and three as unimproved.

On the whole the patients in the control group were not considered such difficult feeding problems. The reaction types of the group not receiving insulin therapy were 12 manic-depressive states of which three were pure excitement states (there was only one mildly excited patient in the insulin group), four schizophrenic states, five psychoneurotic reaction types, one chronic invalid state, one toxic infectious psychosis and one case of general paresis. The paretic patient received malarial therapy and made a weight gain of 26 pounds. This weight gain was the largest in the non-insulin group and pushes the average of the group up considerably.

Twenty-two patients in the group were dismissed as improved and three were considered unimproved.

The greatest single gain obtained was one of 35 pounds in an involutional depressive case. She remained in the hospital 103 days after the insulin was discontinued and continued to gain. Another patient showed a gain of 27 ponuds, another 26 pounds. Sixteen patients in the insulin group gained more than 10 pounds. Only six patients in the control group gained more than 10 pounds. Only two patients given insulin failed to gain weight, and three patients weighed less upon dismissal than on entrance. The weight gain in these later cases began after a marked weight loss while in the hospital but was still less upon dismissal than upon entrance.

The most significant weight gains were seen in the affective reaction types. There was an average weight gain in the manic-depressive group of about 14 pounds. Since the depressive patient is often the most difficult feeding problem, any method that will insure such weight gain is exceedingly desirable. The schizophrenic patients averaged 15 pounds gain in weight, but there were only two patients in this group, one of whom gained 26 pounds. The organic reaction types and miscellaneous group average about nine and one-fourth pounds gain in weight. The psychoneurotic reaction types average about five pounds gain in weight.

In the control group, upon high caloric diets without insulin the weight gain averages were practically the same with each psychotic reaction type. The psychoneurotic group averaged six and two-tenths pounds weight gain; the manic-depressive, six and five-tenths pounds; the schizophrenic six pounds and the organic reaction types five and three-quarters pounds.

Other clinical improvement aside from the weight gain is hard to evaluate. Twenty-two of the 25 insulin treated patients were dismissed as definitely improved. These patients became easier nursing problems. It is most gratifying to see these patients regain their appitites with subsequent gain in strength and normal turgor of skin. They become more interested in the ward routine, become encouraged in their treatment and thus are more accessible for psychotherapy and other therapeutic attempts.

The effect of insulin therapy upon the mental status is still more difficult to evaluate. At times striking improvement in behavior, mentation and return of normal affective tone come coincidentally

with the weight gain. However, as other therapeutic aids are used such as psychotherapy, occupational and recreational therapy, we do not feel justified in attaching too much significance to the weight gain. The unimproved patients were exceedingly difficult types. One showed a marked hebephrenic schizophrenic reaction, another was a senile psychotic and another an involutional depression with schizoid features. In spite of a marked physical gain of 35 pounds this patient is still in a state hospital.

We definitely believe that insulin therapy is a great adjuvent and coincident with the physical gain usually the mental reaction is improved. In many instances insulin therapy shortens the hospitalization period and hastens convalescence. All the factors working together, however, really determine the therapeutic result.

Summary.

Twenty-five psychiatric patients on high caloric diets receiving insulin therapy for malnutrition were compared with 25 cases not receiving insulin therapy; all other conditions being essentially equal. An average of .423 pounds per week excess gain was found in the cases that had received insulin treatment.

We believe that this form of treatment is a definite adjuvant in the handling of the psychiatric patient with undernutrition. This form of therapy makes the psychiatric nursing problem easier and tends to make the patient more accessible to receive other therapy and thus shortens convalescence. It should not be considered a specific therapeutic agent and the results obtained must be evaluated along with other operating therapeutic factors.

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THE TREATMENT OF CONVULSIONS IN CHILDREN.*

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One of the most important factors in the proper treatment of convulsions is a correct diagnosis. This point need not be stressed to psychiatrists or to neurologists but it does bear emphasis. Even recent textbooks in pediatrics refer to "convulsions in childhood," or "fits in children," as if such terminology signified a diagnostic classification. Therefore, I should like to present first a clinical classification of the convulsions of childhood. This classification may not be complete but it presents a clinician's viewpoint or interpretation of the seizures which he sees in practice and which he must attempt to diagnose and treat. The basis for the logical grouping of the diagnoses of convulsions according to age periods has been previously explained.[1]

ENTIRE SERIES.

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	165	33.0
Acute infection	115	22.8
Cerebral birth injury or residue	76	15.4
Spasmophilia or tetany	68	13.6
Miscellaneous	44	8.8
Cause unknown	32	6.4
Total	500	100.0

NEW-BORN (TO 1 MONTH) (AGE OF ONSET).

Diagnosis.	Number.	Per cent.
Cerebral birth injury	18	54.7
Acute infection	4	12.3
Epilepsy	3	9.0
Hydrocephalus	2	6.0
Spasmophilia	2	6.0
Meningovascular syphilis, congenital	1	3.0
Gastro-enteritis	1	3.0
Meningitis, streptococcic	1	3.0
Unknown	1	3.0
Total (6.6 per cent of total cases)	33	100.0

* Read at the ninety-first annual meeting of The American Psychiatric Association, Washington, D. C., May 13-17, 1935.

From 1 to 6 Months (Age of Onset).

Diagnosis.	Number.	Per cent.
Acute infection	20	29.4
Cerebral birth injury	16	23.5
Spasmophilia	11	16.1
Epilepsy	5	7.4
Gastro-enteritis	3	4.5
Meningitis, meningococcic	1	1.5
Unknown	12	17.6
Total (13.6 per cent of total cases)	68	100.0

From 6 to 36 Months (Age of Onset).

Diagnosis.	Number.	Per cent.
Acute infection	59	29.3
Spasmophilia	45	22.4
Epilepsy (idiopathic)	39	19.4
Cerebral birth injury	25	12.4
Meningitis (meningococcic, 3; influenzal, 3; streptococcic, 2; tuberculous, 1; staphylococcic, 1)	10	5.0
Encephalitis residue	3	1.5
Hydrocephalus	2	1.0
Brain injury (traumatic)	2	1.0
Intracranial vascular lesion	2	1.0
Poliencephalitis, Strümpell-Marie	2	1.0
Gastro-enteritis	1	0.5
Congenital syphilis	1	0.5
Pertussis, sequel (intracranial hemorrhage)	1	0.5
Encephalitis, chronic	1	0.5
Unknown	8	4.0
Total (40.2 per cent of total cases)	201	100.0

From 3 to 10 Years (Age of Onset).

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	77	59.0
Acute infection	17	13.0
Cerebral birth injury	14	10.0
Tetanus	4	3.0
Jacksonian epilepsy	3	2.0
Congenital brain defect	2	1.5
Brain tumor	2	1.5
Encephalitis residue	2	1.5
Residue brain injury (traumatic)	2	1.5
Hydrocephalus, congenital	1	0.8

Diagnosis	Number.	Per cent.
Meningitis, streptococcic	1	0.8
Congenital syphilis	1	0.8
Gastro-enteritis	1	0.8
Tertian malaria	1	0.8
Unknown	4	3.0
Total (26.4 per cent of total cases)	132	100.0

From 10 to 15 Years (Age of Onset).

Diagnosis.	Number.	Per cent.
Epilepsy (idiopathic)	26	81.2
Tetanus	2	6.3
Congenital malformation of brain	2	6.3
Encephalitis residue	1	3.1
Cerebral birth injury residue	1	3.1
Total (6.4 per cent of total cases)	32	100.0

Theoretically one may consider all convulsions under the general term of "the convulsive state" but practically there are different types of convulsions which have specific causes and these causes, such as spasmophilia, tetanus, cerebral birth injury, epilepsy, present distinct clinical pictures which respond to distinctly different types of treatment. The convulsions in spasmophilia are controlled with the administration of calcium, those of hypoglycemia with the administration of dextrose, and those of tetanus require treatment with tetanus antitoxin. After the immediate symptomatic treatment of the convulsion it is essential that a careful differential diagnosis be considered, particularly in the chronically recurring seizures.

Thirty-three per cent of all convulsions in childhood, or 60.5 per cent of all of the chronically recurring convulsions, are due to idiopathic or essential epilepsy; 27.8 per cent of the chronic convulsions are due to cerebral birth injury residues, and 11.7 per cent are due to other organic brain lesions, such as chronic encephalitis, traumatic brain injury, congenital syphilis. The majority of cases of chronic convulsions in children are not amenable to direct or surgical treatment and therefore present medical problems.

Of these problems the treatment of epilepsy has been most fascinating because there is no known pathologic lesion in this disease.

I shall not open the argument as to whether epilepsy is a clinical entity in itself. My definition explains my viewpoint, *i. e.,* "Idiopathic epilepsy is a chronic disease of the nervous system characterized by periodically recurring convulsions, lapses or abnormal mental states which occur in an individual with a constitutional inferiority or personality defect but with no demonstrable pathologic lesion which might be responsible for the convulsions." [2] The treatment of epilepsy before the ketogenic diet was introduced was purely symptomatic.

Since the time of Hippocrates it has been known that fasting and purging are the most effective forms of treatment of epilepsy. Geyelin in 1921 reported favorable results with fasting under scientific control. Wilder, on the basis of Geyelin's report, suggested that the ketosis produced by fasting might be the factor responsible for controlling the convulsions. Upon Wilder's suggestion the ketogenic or high fat diet was initiated at the Mayo Clinic. In July, 1924, I submitted a preliminary report of the results of treatment of epilepsy with the ketogenic diet.[3] In this report the basis of the high fat diet was presented. Fasting produces a hypoglycemia, a tendency to acidosis and a ketosis. It was felt that the hypoglycemia was not the effective factor in controlling convulsions because the threshold for seizures seems to be lower when the blood sugar is low. Low carbohydrate diets without ketosis do not control the convulsions of epilepsy. The tendency to acidosis is probably not the factor since acidosis produced in several ways did not control the convulsions for any period. Wilder's argument that the ketosis, particularly the anesthetic effect of the acetoacetic acid produced, was the effective factor seemed most reasonable. However, a marked ketosis, together with an alkalosis, produced with carbohydrate restriction and large doses of sodium bicarbonate, does not control seizures. The most effective results have been obtained when the diet is restricted to a daily allowance of 10 or 15 grams of carbohydrate, 1 gram of protein per kilo of body weight, and the remaining calories supplied in fat.[4]

In 1925 I reported the results of two and one half years of treatment with the ketogenic diet in 37 patients.[5] In this report I showed that the CO_2 combining power of the blood plasma can be brought as low as 32 and the urine pH to 4.4. I also empha-

sized the point that children with organic brain lesions and adults with epilepsy of long standing could not be expected to respond to dietary measures as do children with pure epilepsy. In 1928 Barborka reported that in adults 14 per cent could be kept free of seizures on the ketogenic diet.[6] In 1925 I noted the fact that children on the ketogenic diet showed a change in character concomitant with the ketosis, a decreased irritability and an increased interest and alertness.

Fay in 1928 proposed the mechanical theory of epilepsy and suggested that possibly dehydration was the effective factor in the ketogenic diet.[7] McQuarrie in 1929 demonstrated the dehydration effect of the ketogenic diet.[8] In 1930 I reported the observation that the wheal disappearance test rapidly decreased after the child was put on a ketogenic diet, an indication of the dehydration process induced by the diet.[9] However, strangely enough, in my experience dehydration procedures alone influence grand mal seizures much more effectively than they do petit mal, while the ketogenic diet has been most effective in controlling petit mal attacks.

A review of the literature reveals the fact that the etiology of epilepsy remains in obscurity. The results of treatment with the ketogenic diet have been the most favorable of any since the introduction of phenobarbital. There has been no change in the plan of the ketogenic diet since its introduction except that a preliminary fast is desirable and makes it possible to institute the diet abruptly.[10] The combined treatment of the ketogenic diet, plus dehydration, plus phenobarbital when necessary, offers a practical, fairly simple and effective treatment which will control epilepsy in 50 per cent of the cases and will greatly reduce the number of seizures in another 20 per cent. Eley has stated that if a careful differential diagnosis is made, including an encephalogram, 90 per cent of the epileptic children with normal encephalograms can be kept free of seizures on the ketogenic diet.[11] In the treatment of epilepsy one must not neglect the important details which I have mentioned in previous publications, such as change of environment, a definite daily regimen, removal of all sources of irritation (mental and physical), correction of constipation and correct posture.

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A COMPARISON OF THE WEIGHTS OF BRAIN, LIVER, HEART, SPLEEN AND KIDNEYS OF EPILEPTIC AND SCHIZOPHRENIC PATIENTS.*

By MERRILL MOORE, M. D., and WILLIAM G. LENNOX, M. D.

Introduction.

It has been reported that an abnormal relationship exists between the weight of the brain and of the liver of epileptic patients, and in the size of the heart of schizophrenic patients. In view of these claims, we have attempted to correlate the weight relationships of the brain, liver, spleen, heart and kidneys in the following three groups:

Group I. 143 patients with the diagnosis of epilepsy, who died and were autopsied in state mental hospitals.

Group II. 284 patients with a psychiatric diagnosis of schizophrenia from the same autopsy series as Group I.

Group III. 194 patients autopsied consecutively in three general hospitals. This last group represents a control series, since it contained only patients who died from non-mental disease, yet came, in large measure, from the same communities as did the patients in Group I and II.

No attempt was made to classify the patients with respect to the immediate cause of death. The epileptics and the schizophrenics had been patients in state institutions for custodial care over a considerable period of time and were ambulatory for the greater portion of their stay. The control group suffered acute illnesses and had been in hospitals for a short time prior to death. In this group, cases were excluded which had gross disease of the organs being investigated.

Literature.

Investigators for almost a century have endeavored to relate dysfunction or pathology of the liver to epilepsy. In 1843, a case

* From the Department of Neurology of the Harvard Medical School, the Neurological Unit of the Boston City Hospital, and the Boston Psychopathic Hospital. This paper is No. XXII in a series entitled "Studies in Epilepsy." Funds were in part supplied by the Harvard Epilepsy Commission.

of epilepsy was reported from the Peter-Paul's Hospital in St. Petersburg [1] with pathological findings in the liver which were assumed to be the cause of the seizures. Day,[2] in his *Clinical Histories* published in 1866, states his belief that all but infectious diseases can be explained on the basis of malnutrition, epilepsy in particular. He describes a case of liver disease accompanied by epileptic seizures which disappeared when the liver condition cleared. This patient was free of seizures two years after discharge from the hospital.

In 1871, Kerr [3] reported a case of a young woman who had an "epileptic fit" which terminated her life. The necropsy revealed the right thorax filled with liver tissue. The whole liver weighed eight and three-quarter pounds including a two pound tumor in the left lobe, containing serous, bile-tinged fluid. The diagnosis of epilepsy in this case is very questionable since this was the first and last fit.

Jacobi,[4] in 1897, reported the case of a 12-year-old girl who had left-sided cranial trauma at six years of age. Weir Mitchell, Gower, Jackson and Dana, all concurred in a diagnosis of Jacksonian epilepsy. Urethane was prescribed and the seizures disappeared. Eventually, Ewing performed an autopsy and found an hepatic adenoma and changes in the left hemisphere of the brain due to local cranial defects. The fact that when urethane alleviated the liver symptoms the attacks ceased, suggested to the author, a relation between the seizures and the liver condition.

Féré,[5] in 1897 (and Perretière,[6] in 1905), reported a case of epilepsy with concomitant icterus. Ferrarini,[7] in 1898, described a case of "autotoxic epilepsy of hepatic origin."

Using the levulose tolerance tests, MacLean and de Wesselow [8] in 1920, Spence and Brett [9] in 1921 and Gosden and Fox [10] in 1929, thought they obtained evidence in epileptics of decreased liver function. Covell [11] in 1923, found a marked decrease of hepatic efficiency in a single case. Obregia, Pavlian and Dimolescu,[12] in 1930, reported hepatolenticular degeneration in epileptics at autopsy. Gosden and Fox [10] concluded from their findings with the levulose tolerance tests,

> . . . . these results appear to indicate that there is a definite liver deficinecy in epilepsy which during fits is very marked, and in old-standing cases persists to a slight degree in the interval between fits. This agrees with our post mortem findings in epilepsy.

Myerson,[13] in 1914, studied the liver and brain weights in 20 well-developed and well-nourished epileptics who had died suddenly. He found a slight reversal in the usual condition in which the liver is heavier than the brain; the average weight for the liver was 1150 grams; brain, 1260 grams, this indicating a decrease from normal in the liver weights of his subjects. Thom[14] studied 42 epileptics in 1916 and found an abnormal ratio between the brain and liver weights of 6:7 or 13:16.

The group of Patterson and Weingrow[15] (1928-1930) is the largest which has been reported. The brain and liver weights of 200 cases were studied, with special reference to the onset and duration of seizures. These cases were selected from 800 autopsies and included only patients with "idiopathic epilepsy" (grand mal), ranging in age from 16 to 50 years. All died suddenly in a good state of nutrition. The most common gross abnormalities found in the liver, in order of frequency, were chronic passive congestion, fatty degeneration, cirrhosis and amyloid degeneration. Patterson and Weingrow consider the normal brain to be about 1250 to 1400 grams, and the normal weight of the liver as 1800 grams. They found that the brain weight of their cases rose steadily with lengthened duration of the patient's epilepsy. The liver weight rose, as the onset of the seizures was delayed, until 15 years after which the liver weight fell steadily in proportion to the duration of the seizures. Thus, both the brain and liver developed definitely in this series until the onset of seizures, after which the brain and liver weights diminished as the seizures continued. The persistence of attacks was associated with a fall in the weight of both liver and brain.

From another series of 368 cases of epilepsy, unselected as to onset and duration of seizures, they concluded the diminution in liver size was concomitant with and non-causative of epilepsy. Weingrow,[16] in 1929 stated that the hepatic percussion zones in essential epilepsy seemed diminished in 82 adult cases.

In a series of 183 cases selected by Weingrow[17] from 1220 autopsies at the Craig Colony, which showed no frank liver pathology, there was consistent mental deterioration. The liver weight was below normal in 7 per cent of these cases.

The literature on pathology of visceral organs in cases diagnosed schizophrenia is extensive and confusing. A single investigator,

Lewis,[18] may be mentioned, who observed that the heart and the main vascular tree is small in patients diagnosed schizophrenia, a statement that continues to be the source of much discussion and speculation.

Presentation of Data.

In each group studied, the weight of brain, liver, heart, kidneys and spleen was taken from the autopsy protocol of each case. The records of the State Pathologist of the Massachusetts Department of Mental Disease included 3100 cases autopsied in the 20-year period between 1914 and 1934. This series supplied the epileptic and schizophrenic groups. The control group were selected from the most recent pathological records of the Massachusetts General Hospital, the Boston City Hospital and the Peter Bent Brigham Hospital. Unfortunately, the protocols did not contain the weight or the length of bodies, so that comparison of the weights of organs to these fundamental measurements could not be made.

Weight of Brains.

Because a brain is normal in weight does not, of course, mean that it is normal. Abnormal tissue weighs as much as normal.

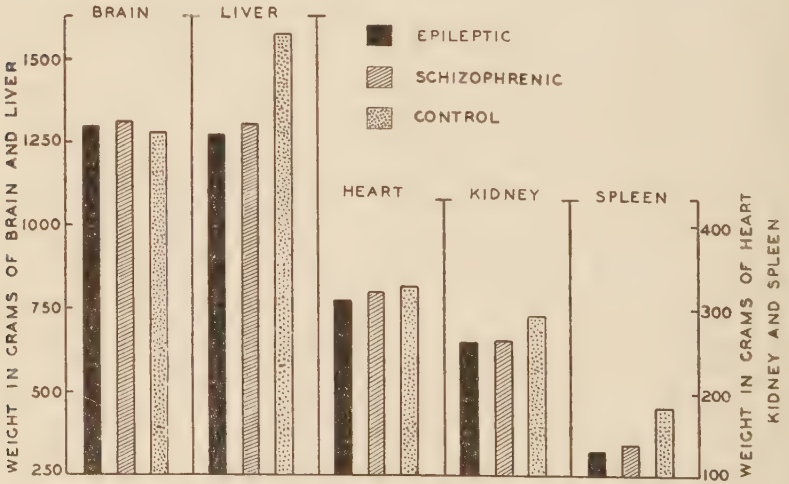

Fig. 1.—Average Weights of Organs of All Groups.

Brains are ordinarily weighed with dura and ventricular fluid intact. Substance or fluid fills the cranial cavity, although, because

of the elasticity of surrounding membranes, edema or dehydration of brain tissues may alter the contents and the weight of the intracranial contents.

Curiously enough, the brain weights of these three groups of patients are practically equal (Table I, second column and Fig. 1).

TABLE I.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO SEX AND GROUP.

		No. cases.	Brain.	Liver.	Liver./Brain.	Heart.	Kidneys.	Kidneys./Heart.	Spleen.
Male.	Epileptic	86	1339	1317	.98	334	267	.79	133
	Schizophrenic	127	1401	1382	.98	337	280	.83	141
	Control	129	1327	1651	1.24	347	298	.86	215
Female.	Epileptic	57	1224	1185	.97	268	240	.89	118
	Schizophrenic	157	1227	1211	.98	301	243	.80	128
	Control	67	1182	1418	1.19	276	273	.98	159
Both.	Epileptic	143	1296	1268	.98	308	257	.83	127
	Schizophrenic	284	1308	1290	.98	318	260	.82	134
	Control	194	1273	1571	1.23	323	291	.90	182

The apparent relative lightness of the general hospital group can be explained only in part by the fact that this group contained a larger proportion of persons under 20 years of age. The average weights between the ages of 20 and 60 (second columns of Tables II-IV) are slightly greater in the control group. In all groups after the age of 60, there is a sharp drop in weight (except in

TABLE II.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO AGE OF PATIENTS WITH EPILEPSY.

Age.	No. cases.	Brain.	Liver.	Liver./Brain.	Heart.	Kidneys.	Kidneys./Heart.	Spleen.
0-19	10	1164	851	.73	155	165	1.06	89
20-29	14	1319	1286	.95	325	294	.90	164
30-39	27	1301	1266	.97	300	260	.86	125
40-49	36	1344	1319	.98	313	262	.84	133
50-59	25	1305	1328	1.01	341	304	.89	146
60-69	19	1271	1247	.97	403	264	.65	109
70	12	1227	1277	1.04	449	282	.62	92

TABLE III.

AVERAGE WEIGHT OF ORGANS WITH REFERENCE TO AGE OF PATIENTS WITH SCHIZOPHRENIA.

Age.	No. cases.	Brain.	Liver.	Liver, / Brain.	Heart.	Kidneys.	Kidneys. / Heart.	Spleen.
0-29 *	30	1342	1290	.97	249	263	1.05	136
30-39	52	1340	1372	1.02	292	296	1.01	144
40-49	70	1317	1290	.98	287	244	.85	146
50-59	54	1335	1307	.97	336	263	.78	141
60-69	46	1276	1257	.98	398	270	.67	112
70	32	1197	1145	.95	349	216	.61	114

* But one case was less than 20 years of age.

TABLE IV.

AVERAGE WEIGHTS OF ORGANS WITH REFERENCE TO AGE OF CONTROL PATIENTS.

Age.	No. cases.	Brain.	Liver.	Liver, / Brain.	Heart.	Kidneys.	Kidneys. / Heart.	Spleen.
0-19	31	952	617	.65	111	131	1.10	88
20-29	11	1368	1785	1.30	371	331	.89	157
30-39	32	1379	1775	1.28	313	390	1.20	203
40-49	40	1336	1944	1.37	390	304	.77	207
50-59	38	1321	1846	1.39	363	316	.87	202
60-69	29	1336	1591	1.11	372	296	.79	190
70	15	1227	1232	1.00	394	292	.74	145

the seventh decade of the control group). It would be interesting to know if the decrease is greater or less than the old age decrease in body weight. (Why do pathologists so carefully weigh the parts of a body and never weigh the whole?)

Of particular interest is the equality in the weight of epileptic and dementia præcox brains. If cerebral edema were the cause of epilepsy, as some hold, epileptic brains should be heavier than these measurements show them to be.

LIVER WEIGHTS.

In the case of the livers, there is an unmistakable difference. The livers of the control group are, on the average, about 300 grams heavier than either of the institutional groups, and this in spite of the relatively large number of "control" youths (Table I, column 3).

The epileptic and schizophrenic groups are equal, or rather the slight inequality can be acounted for by the age factor.

Perusal of the "liver" column in Tables II-IV shows that the weights are consistently low among institutional cases for all ages. In the epileptics below 20 years, the livers are exceptionally light, perhaps because these patients are exceptionally young.

Ratio of Brain and Liver Weights.

As we have stated, previous investigators have stressed the abnormally ratio in epilepsy of brain and liver weights. However, it is not the relative weights which are abnormal, but rather the

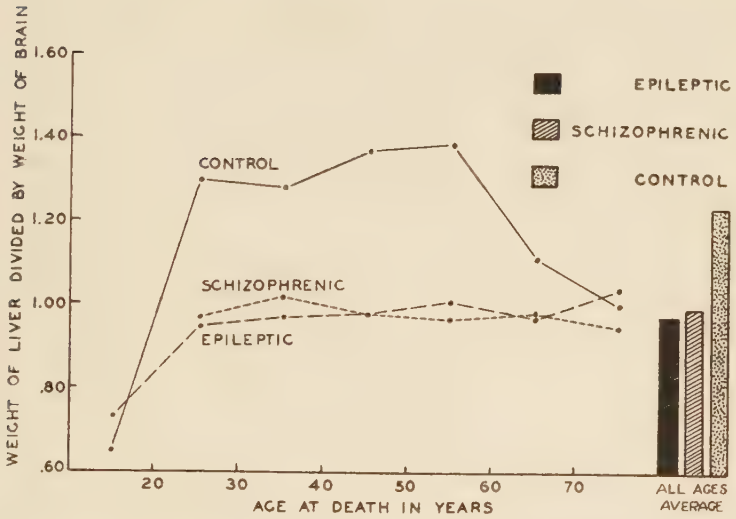

Fig. 2.—Ratio of Brain to Liver Weight in All Groups with Reference to Age.

absolute weight of the liver. The fourth column of Table I demonstrates the average ratio, which is not affected by sex. In regard to the influences of age (Tables II-IV and Fig. 2), there is for the institutional patients a gradual increase in the ratio (the liver becomes heavier with reference to the brain) with advancing age. In the control group the relatively heavy livers are found in the age groups between 20 and 60. The young and the aged "controls" do not differ from the epileptic and schizophrenic patients.

The significant point is that the ratio is low for the two institutional groups throughout all age periods, and the ratios for the epileptic and the dementia præcox groups are practically identical.

Heart Weights.

The average weights of the hearts of the three groups are remarkably alike. The epileptic heart is 10 grams lighter than the schizophrenic, a difference accountable to the larger number of epileptic youths. The schizophrenic group has a larger proportion of females, which would be expected to lower the average heart weight for this group. Certainly schizophrenics do not have small hearts when compared to epileptics. Their hearts are a trifle lighter than those of patients dying in a general hospital but these latter include some patients with non-valvular heart disease and a greater proportion of males.

Studying the influence of age, we find that there is a steady increase in weight with advancing years (Tables II-IV). This is in contrast with the brains and livers which become lighter. Hearts of the three groups all get heavier with age, but the increase is greater in the institutional groups. Epileptic and schizophrenic patients run parallel, which refutes the old textbook statement that repeated convulsions result in cardiac hypertrophy.

Kidney Weights.

Here again, the epileptics and schizophrenics are alike. Patients dying in a general hospital had slightly larger kidneys, probably because (although organs with tumors and infections were excluded) there were a larger number of nephritic and congested kidneys in the control group.

There was a tendency for the average weights to decline after middle age.

Ratio of Heart and Kidney Weights.

Reflecting the higher average weight of the kidneys in the control group, the ratio of heart to kidney weight is also greater.

Of special interest is the decrease in the ratio (larger hearts and smaller kidneys) with increasing age (Fig. 3). This inverse rela-

tionship is significant of cardio-renal disease and is not to be wondered at in the older members of the general hospital group. That a decreasing ratio holds for all groups of patients and begins in young adults is of general medical interest.

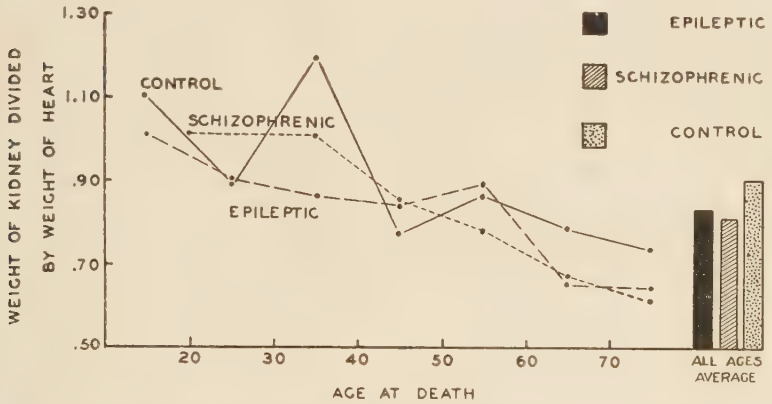

Fig. 3.—Ratio of Heart to Kidney Weight in All Groups with Reference to Age.

Spleen Weights.

What has been said about the liver holds for the spleen. The average spleen weight is practically the same in epileptics and schizophrenics, and both are much lighter than the spleens of

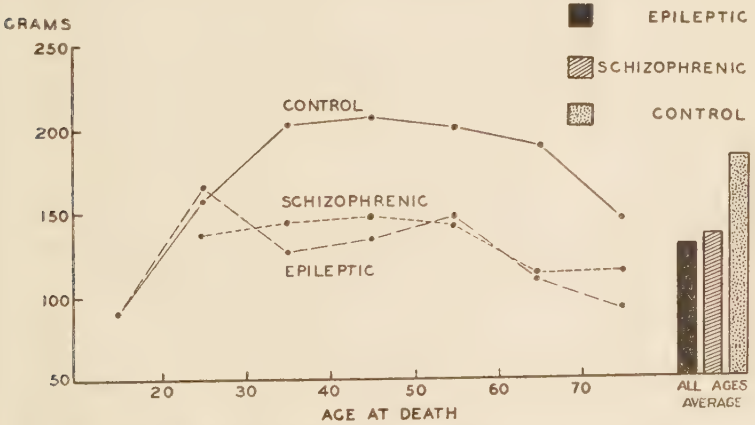

Fig. 4.—Weight of Spleen in All Groups with Reference to Age.

general hospital patients. In fact, they are lighter than the livers. In institutional patients livers were about 18 per cent lighter and spleens about 28 per cent lighter than the livers and spleens of the general hospital patients.

As with the livers, the control spleens are heavier for almost all the age periods and the absolute weights decrease with advancing age (Fig. 4 and Tables II-IV).

Comment.

These observations confirm those of Myerson, Thom, and Patterson and Weingrow that the livers of epileptics are usually small. These authors were inclined to regard this finding of possible significance in the causation of seizures. However, the wider range of our inquiry makes clear that the small liver is not peculiar or specific for epilepsy. If it in some way causes convulsions, then it also causes schizophrenia. Furthermore, the liver is not the only organ to be viewed with suspicion. If, because of its weight, the liver is implicated in epilepsy, then the spleen is also. In 1918, Canavan and Southard [19] made note of small spleens in dementia præcox. Apparently, this condition is present in epilepsy also. May it be present likewise in prisioners, inmates of old people's homes and the like?

Before casting blame on these organs, we should inquire whether the lightness is effect rather than cause of the diseases in question. Obviously, we should know the results of microscopic examinations of the livers in order to say whether the decrease in weight is due to a morbid process, such as cirrhosis, or to lack of bulk from deficiency in food elements. Evidently, the gross appearance of cut sections of these organs was normal. The presumption is that the light weight of livers and spleens of the institutional groups was a reflection of dietary deficiency or of malnutrition, and was simply a result of incarceration. Body weights are lacking but it is a fair assumption that persons dying of acute disease in a general hospital are in a better state of nutrition than those dying after years of residence in an institution. With psychotic patients, proper feeding is often difficult. Epileptics are usually voracious eaters, but the diet may not be as rich or as varied as that given to patients in a general hospital. Furthermore, a considerable proportion of institutional patients die of wasting conditions, particularly tubercu-

losis and diarrhea. Against the importance of these considerations is the statement of Myerson and Patterson and Weingrow that the cadavers they examined were well nourished.

Would malnutrition effect liver and spleen more than heart, kidneys or brain? Jackson,[20] quoting Lazareff, gives the weight loss of various organs of groups of guinea pigs in various stages of total inanition. The following tabulation compares the percentage change in weight of the organs of that group of animals which had lost 20 per cent in body weight, with the percentage change in weight of organs of institutional patients, compared with the control group.

	Animals—change in weight compared with pre-inanition period. Per cent.	Patients—change in weight compared with control group.	
		Schizophrenic, Per cent.	Epileptic, Per cent.
Brain	− 3.0	+ 2.7	+ 2.0
Heart	− 9.1	− 1.5	− 4.6
Kidneys	− 2.5	−10.6	−11.7
Liver	−23.5	−18.5	−19.9
Spleen	−31.2	−26.4	−30.2

It will be seen in both starving animals and in institutional patients, the liver and spleen are relatively much lighter than the brain, heart or kidney. The average daily cost of food per patient in one state institution for epileptics is 12 cents. These bits of evidence go to strengthen our feeling that dietary conditions may account for the small livers and spleens in the institutional groups.

If all this laborious statistical study leads to the conclusion that the institutional patients were undernourished, the very homely corollary follows that greater attention needs to be paid to the weight and the general physical condition and state of nutrition of these patients.

Conclusions.

The weights of the brain, liver, heart, kidneys and spleen have been recorded for 143 epileptics, 284 schizophrenics, and 194 patients dying in a general hospital.

The average weights of these organs did not differ significantly in the epileptic and schizophrenic groups. In particular, brains of epileptics were not heavier, nor were the hearts of schizophrenics lighter than in the other group.

In comparison with the control group of general hospital patients, the important difference was the lightness of the livers and the spleens of the institutional patients, an 18 per cent average decrease for livers, and a 28 per cent decrease for spleens.

We believe it probable that the small livers and spleens are not of etiological significance in epilepsy or schizophrenia, but are a result of chronic disease or of dietary insufficiency.

NOTE.—The authors wish to acknowledge the courtesy of Dr. M. M. Canavan, formerly pathologist to the Massachusetts Department of Mental Diseases, and of the pathologists to the Massachusetts General Hospital, the Boston City Hospital and the Peter Bent Brigham Hospital in making accessible the data used herein.

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Comment.

RESEARCH IN PSYCHIATRY.

In the March-April issue of the monthly bulletin of the Massachusetts Society for Mental Hygiene, Dr. Abraham Myerson, director of the research laboratory at the Boston State Hospital, discusses what he believes to be significant and accessible avenues of investigation in the field of psychiatry, recognizing the fundamental unity of the mental sciences, medicine and biology and the necessity for the cooperative efforts of chemistry, physics, physiology and psychiatry in the solution of the problems of mental disorder. Dr. Myerson points out that psychiatric research is really research in every field of medicine.

The main directions of inquiry which have been followed at the Boston State Hospital are thus outlined:

> The laboratory has divided up its work for the past eight years into several important research units. For several years its main efforts were directed towards the study of those conditions of pressure and chemistry which took place within the skull. In other words, by the development of special techniques the laboratory undertook to understand the physical fluid shifts and the chemical interchanges which are part of cranial and brain activity. The introduction of the internal jugular puncture made it possible to study these changes and, together with techniques developed by other workers, the laboratory has contributed a good deal of original work on intracranial dynamics. Thus we studied the shifts of fluid pressure and circulation which take place whenever the body is changed in posture, as for example, when the head is up or down. The effect of drugs in the creation of changes of cranial pressure was also studied. As a result of the work of this laboratory and of many other places of research, it can be stated that what happens within the head under many circumstances of health or disease has become better understood. The intracranial space is a veritable maelstrom of changing pressures and of speeds of fluids which enter and leave the head, such as the arterial-venous stream and the arteriospinal fluid pressure. This mechanism is extremely sensitive to all manner of the changing relations of the individual to the outer world, while at the same time the organism in a condition of health has very efficient and very swiftly acting mechanisms of compensation. It appears, too, that a large part of the symptoms of disease arises because of the fact that this machinery of compensation breaks down.
>
> Our interest in the changes within the brain under the influence of drugs led finally to the study carried on this year of the effect of those drugs which

profoundly influence the autonomic nervous system. There has opened one of the most fascinating chapters in the history of research. The chemist has been able to isolate those substances which the nervous system stimulates the body into producing and which are the basis of nervous and muscular action. Science has also been able to manufacture the substances which resemble these natural chemical products of nervous activity. The result is that pharmacology is entering into a new era, one in which the chemicals which are to be administered are merely modifications of those chemicals by which the body itself marshals and inhibits and regulates its own forces. One can now raise and lower the blood pressure at will; the tone of the gastrointestinal tract can be shifted from spasticity and increased tone to atonicity or the absence of contraction. Even such matters as the number of red cells in the organism can be increased by the use of appropriate chemical substances. Sleep can be totally destroyed or made profound; mood in very definite measure is altered by these sympatho-mimetic and parasympatho-mimetic drugs (that is, drugs which initiate the action of the sympathetic and parasympathetic nervous system).

The way is opened for a modification of the physiological and psychological activities in a much more precise and definite manner than has ever been possible before and the prediction can freely be made that diseases hitherto entirely inaccessible to treatment will now be mastered.

We have also studied the mineral content of the brain and other parts of the nervous system. A new technique has opened the doors to new facts and it is now evident that minerals which have hitherto been believed to be more or less inert in nervous and brain activity are on the contrary very active and enormously important both in normal and pathological mental processes.

Research of this kind, which has its foundation in the basic sciences and proceeds in harmony with experimental work in other branches of medicine, is the one which seems to offer most promise in the still obscure future of the prevention and treatment of mental illness. As Dr. Myerson remarks,

> The cure of mental disease is not purchasable in the sense that one can shop around and buy cures. It is purchasable if by this term is meant that the community can employ and reward devoted men and women who will give their lives during the next few generations to research into the causes and treatment of the mental diseases. If the community will collaborate with the scientists in this manner there is reason to believe that there is no mental disease which can forever resist the intelligent and faithful efforts of men to master it.

CONSTITUTION AND BY-LAWS

OF THE

AMERICAN PSYCHIATRIC ASSOCIATION.

As Amended at the 92d Annual Meeting, St. Louis, Mo., May 6, 1936.

CONSTITUTION.

ARTICLE I.

Name.—This corporation, founded in 1844 as The Association of Medical Superintendents of American Institutions for the Insane, known from 1892 to 1921 as The American Medico-Psychological Association and since 1921 as The American Psychiatric Association, is hereby continued under the last designation.

ARTICLE II.

Objects.—The objects of this Association shall be—(A) to further the study of subjects pertaining to the nature, treatment and prevention of mental disorders; (B) to further the interests, the maintenance, and the advancement of standards of hospitals for mental disorders, of out-patient clinics, and of all other agencies concerned with the medical, social and legal aspects of these disorders; (C) to further psychiatric education and research; (D) and to apply psychiatric knowledge to other branches of medicine, to other sciences and to the public welfare.

ARTICLE III.

Membership.—Section I. There shall be six classes of members: Fellows, Members, Associate members, Life Fellows, Honorary members, Corresponding members.

Section II. All classes of membership except Honorary and Corresponding members shall be residents of the United States or its dependencies or British America at the time of their election.

Section III. An Examining Board of not less than five Fellows shall be appointed by the President and approved by the Council. One member of this Board shall retire each year and be ineligible

for reappointment. It shall be the duty of this Board to make a report and recommendation to the Council on every application for every class of membership.

It shall also be the duty of this Board immediately after its organization and from time to time afterward to submit to the Council plans for the procedures by which it proposes to pass upon the fitness of new applicants for membership and of present members of the Association, make such other recommendations as it may deem advisable from time to time and perform such other duties as Council or Association may assign to it. Its plans and recommendations must be approved by the Council.

Section IV. Fellows hereafter shall be chosen from members of not less than one year's standing who have specialized in the practise of psychiatry for at least six years.

Section V. Members hereafter shall be chosen from physicians who have specialized in the practise of psychiatry for at least three years.

Members shall be recommended to Fellowship as it becomes apparent that they deserve this recognition.

Section VI. Associate members shall be physicians who have had at least one year's practise in a mental hospital.

Section VII. Life Fellows shall be those who have maintained themselves in good standing as Fellows (or formerly as active members) for thirty consecutive years. They have all the rights of Fellows.

Section VIII. Honorary members shall be those who have distinguished themselves by attainments in psychiatry or related sciences or who have rendered signal service in philanthropic efforts to promote the interests of psychiatry and mental hygiene.

Section IX. Corresponding members shall be those who are qualified for Fellowship but who are not residents of the United States or its dependencies or British America.

ARTICLE IV.

Officers.—The officers of the Association shall be a President, President-Elect, a Secretary and a Treasurer whose duties may be combined, and a Council to include the above officers and twelve Fellows of whom the retiring President shall be one.

Past-Presidents after their service in the Council shall thereafter be ex-officio members of the Council without the right to vote.

There shall be three Auditors, one of whom shall retire each year.

ARTICLE V.

PRIVILEGES.—Fellows and Members only shall be entitled to vote at any meeting and Fellows only shall be eligible to office in the Association. Life Fellows, Honorary members, and Corresponding members shall be exempt from the payment of annual dues to the Association.

ARTICLE VI.

ELECTION OF OFFICERS.—Section I. The officers and four members of the Council and one Auditor shall be elected at each annual meeting. Nominations shall be made to the Association in the order of business at the first session of the second day of the annual meeting by a committee appointed for that purpose by the President during the first month of his incumbency. Elections shall take place immediately. The nominating committee shall consist of five Fellows. It will send out its ballot in the JOURNAL or otherwise, to every member of the Association, at least one month before the annual meeting. Other nominations may be made from the floor.

Section II. The President, President-Elect, and Secretary and Treasurer shall hold office for one year. Councillors and Auditors shall serve three years. The President, President-Elect and the four retiring Councillors are ineligible for re-election to their respective offices for one year immediately following their retirement. The President, President-Elect, Secretary and Treasurer, shall enter upon office at the close of business at the annual meeting at which they are elected. Other officers shall enter upon their duties immediately after their election. All officers shall serve until their successors are elected, and qualified.

Section III. A majority of the members of the Council shall constitute a quorum.

ARTICLE VII.

POWERS.—The President shall preside at the annual and special meetings of the Association or Council. In his absence at any time

the President-Elect shall act in his place. The President shall appoint committees of the Association.

The President-Elect shall assume the office of President at the close of the annual meeting held one year after his election.

The Secretary shall keep the records of the Association and perform all the duties that may be prescribed for him by the Council. The Treasurer, under the Council, shall receive and disburse and duly account for, all sums of money belonging to the Association; he shall submit a financial statement each year to the Council at its annual meeting; he shall be placed under bond to an amount which the Council each year directs. The Council may appoint an Executive Assistant or a person otherwise designated on a salary to carry such duties of the Secretary-Treasurer as may be assigned by the Council, having power to receive and deposit moneys for the Association. Such Assistant shall be bonded in an amount to be determined by the Council.

The Auditors shall examine each annual financial statement of the Treasurer and arrange for its audit by certified public accountants. The Auditors will propose and the Council will name the depositories in which the Treasurer shall keep the funds of the Association. The Auditors will act as the Financial Committee of the Council and their recommendations and actions shall be subject to the approval of the Council.

The Council shall control the funds in the possession of the Association. It shall publish a JOURNAL and print annually the proceedings of the meetings. It shall appoint the editor of the AMERICAN JOURNAL OF PSYCHIATRY. It is empowered to appoint Committees from its own membership to expend money for special scientific investigations in matters pertaining to the objects and business of the Association, to publish reports of such investigations, to adopt a budget for current expenses of the Treasurer and Committees for the ensuing year, and to apply the income of special funds to the purposes for which they were intended.

The Council shall elect an executive committee to consist of the President, President-Elect and Secretary with two other of its members which shall have the powers of the Council (at such times as matters important to the Association must be decided and it is considered unnecessary to call the Council together) between meetings of the Council.

The Executive Committee derives all its powers from the Council and the Council derives all its powers from the Association.

ARTICLE VIII.

AMENDMENTS.—Amendments to the Constitution shall be considered at the first session of the second day of any annual meeting and be adopted by a two-thirds vote of all Fellows and Members present and voting: Provided, That notice of proposed amendments has been given in writing at the annual meeting preceding that at which the amendments are submitted for action. It shall be the duty of the Secretary to send to every member, in the JOURNAL or otherwise, at least three months previous to the voting upon an amendment, a copy of its provisions.

Amendments to the By-Laws shall also be considered at the first session of the second day of any annual meeting and may be adopted by a two-thirds vote of all the Fellows and Members present and voting: Provided, That notice of proposed amendments shall have been given to the Secretary and by him published in the JOURNAL or otherwise, at least three months previous to the annual meeting at which they are to be considered, and further Provided, That these amendments have been considered at an appropriate meeting of the Council.

BY-LAWS.

ARTICLE I.

ORDERS OF BUSINESS.—The meetings of the Association shall be held annually, each meeting to extend over at least three days. The place of each meeting shall be named by the Council and reported to the Association for action at the annual meeting preceding. Each annual meeting shall be called by printed announcements sent to each member on its rolls at least three months previous to the meeting, and by publication in the JOURNAL.

On the second day election of officers shall be held and amendments to the Constitution and By-Laws shall be considered.

On the third day elections to the different classes of membership in the Association shall be held. The lists of candidates submitted shall have been passed by the Examining Board and the Council. Before the close of the final session the President, the President-Elect, and the Secretary and Treasurer shall be inducted to office.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and shall hold as many sessions and at such times as the business of the Association may require.

The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least two weeks' written notice.

ARTICLE II.

Dues.—Each member shall pay to the Treasurer such annual dues and assessments as shall be determined by the Council at its annual meeting.

ARTICLE III.

Resignation and Dismissal.—Any member of the Association may withdraw by signifying his desire to do so in writing to the Secretary: Provided, That he shall have paid all dues to the Association. Any member who shall fail for three successive years to pay dues after special notice by the Treasurer shall be regarded as having forfeited membership, unless such payment of dues is waived by the Council for good and sufficient reasons.

The name of any member declared unfit for membership by two-thirds vote of the members of the Council present at an annual meeting of that body, shall be presented by the Council to the Association, from which he shall be dismissed if it be so voted by a number not less than two-thirds of those present at the annual meeting, registered and voting.

ARTICLE IV.

Affiliated Societies.—When any state or provincial psychiatric society or psychiatric society of a geographic division in the United States or British America shall express a desire to become an affiliated society of The American Psychiatric Association, it shall submit to the Council of this Association a copy of its constitution and by-laws, showing the requirements for membership and a list of the members. If the Council recommends to the

Association at an annual meeting that the said society be accepted and this recommendation be adopted by a vote of not less than two-thirds of the Fellows and Members registered and voting at the session at which the recommendation is submitted, the society making application shall thereafter be designated as an Affiliated Society of the Association. Societies designated as district societies previous to the adoption of this by-law shall hereafter be designated as Affiliated Societies.

ARTICLE V.

District Branches.—When a group of not less than twenty of the membership of the Association residing in any state or group of adjoining states shall make application to the Council of this Association to organize a district branch of the Association and the Council approves, the Council may recommend to the Association at an annual meeting, the establishment of such a district branch, to be named according to the state or group of states where it is to be organized. The recommendation may be adopted by a vote of not less than two-thirds of the Fellows and Members of the Association registered and voting at the session at which the recommendation is submitted: provided however, that no one shall become a member of the district branch who is not already in the membership of The American Psychiatric Association. Each district branch may elect its own officers, arrange its own programs of meeting and shall provide for its own expenses.

ARTICLE VI.

New Sections.—The Council upon its own initiative or upon the application of not less than twenty Fellows or Members, or Associate Members, may present to the Association a proposal for a section which shall have its own special program. Upon approval of the Association the following plan shall be adopted:

1. A section of The American Psychiatric Association shall be established and appropriately named.

2. A section chairman and secretary shall be elected by the section. The chairman shall be a Fellow of The American Psychiatric Association.

News and Notes.

Nation-Wide Development in the Field of Psychiatry.—Through the efforts of the Committee on Public Education, under the chairmanship of Dr. C. C. Burlingame, the following notes have been compiled from material communicated by members of the Association. The cooperation of these members is deeply appreciated by the committee and the Journal.

It is hoped that other members of the Association may contribute items of interest as they occur so that the committee may have a running summary of events of psychiatric import throughout the country, to be made available for the information and use of the Association at large and for publication from time to time.

This summary, incomplete as it may be, points to a definite quickening of interest in psychiatry throughout the nation. New construction has unquestionably been stimulated by federal agencies and many states are taking advantage of the opportunity to remedy overcrowding which has existed for years. At the same time, the magnitude of the construction already under way suggests the needed study of other alternatives such as boarding out. Already practised in Massachusetts, New York and other states and with Pennsylvania embarking on an official boarding out program it would seem that this is an approach to the problem which is worthy of serious consideration.

The West Virginia experiment is of interest, but it is questionable whether such a plan could be put into effect in many other states without arousing serious opposition.

The numerous "studies" and "investigations" which are now going on reflect not only an interest in psychiatric problems, but a determination by interested groups to see that necessary modernization is made in our statutes.

Some of these investigations or studies are political in their nature, such as the original Maryland investigation, but it has been shown that an enlightened public opinion, if lead by representative psychiatrists can easily dissipate their effect.

Members of the Association are invited to send items of interest to Dr. C. C. Burlingame, Chairman, Committee on Public Education, 200 Retreat Avenue, Hartford, Conn.

California:

Dr. E. W. Mullen for the past 24 years assistant superintendent of the Agnews State Hospital was appointed superintendent of that hospital, succeeding Dr. J. M. Scanland who was transferred to the superintendency of the Napa State Hospital.

The new Camarillo State Hospital, situated in the Malibu Hills is now being used, patients having been transferred from Napa, Norwalk, Stockton and Sparta. This is the first unit in a six million dollar hospital project.

Colorado:

Conditions have been improved at the Pueblo State Hospital by the erection of six new buildings accommodating 1200 additional patients and the installation of a cafeteria food service which has proven to be quite satisfactory.

Although there is no official or administrative tie-up between the Psychopathic Hospital and the State Hospital under a plan now effective, staff physicians from each institution are assigned three months service in the other. A certificate is granted by the University of Colorado on the satisfactory completion of this work.

Recent legislation prohibits the sale of sedative drugs except on the prescription of a physician.

Delaware:

A closer integration between the State Hospital and other Public Welfare Agencies may be effected by the recently formed "Study Group" representing each phase of welfare work. An executive and board member from agencies dealing with such specific problems as "Health," "Dependency," "Delinquency" "Aged" and "Negro Race" together with two members of the State Board of Charities constitute the Study Group. The duties of this group are to study the needs and requirements of each institution, organization and agency and to make recommendations to the Governor and Budget Committee.

Bills calling for the expenditure of $462,000 for alterations, repairs and remodeling of various state hospital buildings failed to pass at the last legislature, but probably will be introduced at the next session.

Illinois:

As part of an eighteen million dollar Public Welfare building project, seven new buildings at an estimated cost of one million dollars are being erected at the Elgin State Hospital. The addition of these buildings will bring the rated capacity of the institution up to 4500 patients, and it is not planned to expand beyond this point.

The buildings being erected are:

1. Diagnostic Center, a two story building with a capacity of 200 beds. A feature of this building is the conference room suitable for groups of 125 or more. While there will be single rooms, practically all patients will be cared for in sleeping bays of ten to twelve beds each, with ample dayroom and dining room space for up-patients.

2. Tuberculosis pavilion, providing for the care of 100 patients; about 4.4 per cent of patients in this hospital are known to be tuberculous, about one half being inactive. Arrested cases are kept under observation and returned for sanitorium care when indicated.

3. Two simple one story E type structures to be used as infirmaries. Other buildings include an additional cottage for able bodied male patients, an employees' building and a staff house.

The Institute for Juvenile Research under Dr. Paul L. Schroeder is making an intensive study of the cause of and treatment for juvenile delinquency. Operating as a joint project between state and private agencies this "Chicago Area Project" is concentrating on a circumscribed area known for 35 years to have a high incidence of delinquency, and is studying this area from both a psychiatric and sociological viewpoint.

While the project has been effective for several years now, because of its extensive nature no official reports of the study are yet available.

Kentucky:

Legislation providing for a 35 day observation commitment, a drastic departure from precedent, successfully passed the Kentucky legislature and is now in effect. Other legislation of a progressive nature, still pending at last report, would create a full time Juvenile Court judge for Louisville and Jefferson County.

A program involving the expenditure of more than ten million dollars for the reorganization of the state hospitals is being considered by the Legislature. Tentative plans would involve the construction of two new institutions, one for the mentally ill and the other for mentally defectives.

Recent additions to the Louisville City Hospital have made it possible to re-model the psychopathic ward and to install additional hydrotherapy and occupational therapy units.

Dr. Oscar E. Hubbard formerly of the Fairfield (Connecticut) State Hospital is now at the University of Louisville with Dr. Spafford Ackerly, having started his Fellowship on January 1.

Maryland:

Dr. S. W. Weltmer has been appointed medical superintendent of the Spring Grove State Hospital at Catonsville; Dr. Ira Darling, formerly superintendent of the Warren (Pa.) State Hospital has been appointed medical superintendent of the Springfield State Hospital at Sykesville.

It is pretty generally felt that the damage caused by the legislative committee which last year investigated the Springfield State Hospital will be more than counteracted by the new committee which consists of three psychiatrists, an eminent attorney, an able woman and a business man. This committee is at present studying all matters relative to the care of the mentally ill and the feebleminded, and a feeling of comparative security has replaced the unrest which was prevalent during the bludgeoning process of the now discredited legislative committee.

Missouri:

The City of St. Louis is about to construct a Psychopathic Hospital of 204 beds at a cost of approximately $1,200,000. Land has been acquired for this purpose adjoining St. Luke's City Hospital.

To remedy overcrowding caused by a lack of new construction over a 20 year period, the State of Missouri has floated a ten million dollar bond issue which has been supplemented by six million dollars of P. W. A. money. Approximately eight million dollars have been allotted from this fund for new construction at the four state hospitals and school for defectives. In constructing these additions to the existing institutions cognizance was taken of the new law which enables voluntary patients to remain in state hospitals for a period of six weeks, and clinic buildings are being located so that these short-term voluntary patients will not come in contact with chronic cases. It is expected that voluntary patients will thus be attracted for diagnoses and advice.

Nebraska:

Legislation imposing a mill levy, designed to raise funds for the construction of new buildings and renovation of existing structures, was defeated, but it is planned to re-introduce the bill at the next session of the Unicameral Legislature in January, 1937.

New Hampshire:

Aided by W. P. A. the New Hampshire State Hospital is adding to its building for active male cases and is also building duplex houses for its physicians.

New York:

The Department of Mental Hygiene will probably receive about five million dollars from the bond issue approved last November 1, for construction. It is to be allocated as follows:

Rockland, 1200 beds	$3,150,000
Brooklyn, 800 beds	640,000
Creedmoor, 400 beds	930,000
Utica, 450 beds	303,000

One of the outstanding bills introduced in the New York legislature this year was the proposal to put into effect the eight hour day in all institutions. This has been favored by the Department of Mental Hygiene for many years and was recommended by the Governor in his annual message, together with the suggestion that a lump sum appropriation be made as a beginning, the plan finally to be perfected during the next fiscal year.

Other bills pending at last report were, a bill requiring five years residence of both parties for annulment of marriage on the ground of incurable insanity; a bill limiting the powers of local municipalities in the application of zoning laws to licensed institutions already established; a bill requiring an appointing officer to appoint only the person standing highest on the eligible Civil Service List; and another, prohibiting educational requirements for Civil Service positions except professional positions. Under the Corrections Law, a proposed amendment provides that a prisoner sent to a hospital because of sickness must be kept in the custody of officials in charge of a jail instead of the chief officer of the hospital. If passed, this last-named bill might prove to be somewhat of a nuisance in mental hospitals.

Needless to say, some of the proposed legislation listed above, will never see the light of day.

North Carolina:

The North Carolina Neuropsychiatric Association has been extremely active during the past year in formulating a state-wide mental health program. The Association is well represented on the special committee which has been appointed to report to the Legislature on proposed changes in public institutions.

North Dakota:

A new seven story building, to be used as a medical center is now under construction at the North Dakota State Hospital. The building will supply infirmary care and treatment for 450 patients and will relieve the present over-crowded condition. The cost of the structure is $360,000 exclusive of equipment, part of the money being furnished by the federal government and the balance by the state.

Five stories will be used for both male and female patients with sexes on alternate floors. The seventh floor will contain the operating rooms and physicians' quarters. Each floor will contain a hydro-therapy unit, although the main hydrotherapy department will remain on the receiving wards which are located in a separate building.

Ohio:

Continuing progress has been made at the Hawthornden Colony of the Cleveland State Hospital. There are now seven cottages of old English type with a capacity ranging from 40 to 175 beds. Furnishings are a departure from the usual hospital pattern. The last cottage opened will be used

for the reception of new cases and for the care of those acutely ill. Another building for housing tuberculous patients, accommodating 125, will be completed July 1.

The extremely comprehensive and intelligent survey made by the Sherrill Committee, of all state institutions, has been in part effected by the creation in the Department of Public Welfare of four subdivisions; *viz.*, Division of Administration, Division of Mental Hygiene, Division of Corrections and Division of Public Assistance.

For the twelfth time a Sterilization Bill has been introduced in the Ohio Legislature and at the present writing, it looks as though for the twelfth time it will be defeated.

The Ohio building program for 1936 as outlined by Mr. Oakley Spaght, Assistant Director of Public Welfare in that state is as follows:

> "This program will be carried on by the money appropriated by the 89th General Assembly which set aside $550,000 out of the general revenue fund, each year during 1934, 1935, 1936, 1937. There will be a like expenditure in 1937 which will have completed the total building program intended to provide additional facilities for mental and feeble-minded cases. In addition to this, permission was secured from Governor Davey last week to write an appropriation bill calling for one million dollars to relieve the condition in Cuyahoga County. At the present time there are 1080 patients in private sanatoria in Cuyahoga County being paid for by the state at the rate of $2.50 a day because of the crowded condition at the Cleveland State Hospital and Hawthornden. This million dollar appropriation will be used at Hawthornden."

Pennsylvania:

Dr. Arthur P. Noyes for the past six years superintendent of the Rhode Island State Hospital for Mental Diseases has been appointed superintendent of the Norristown (Pa.) State Hospital.

The Boarding Out Amendment which enables superintendents to place patients in boarding homes, passed by the Legislature in 1935, is being carefully and slowly applied, according to Dr. William C. Sandy, director of the Bureau of Mental Health. Rules and regulations covering the boarding out system have not yet been completed but will include adequate investigation and supervision of the homes and adequate supervision of the carefully selected patients. It is expected that not more than two patients will be placed in any one home.

Rhode Island:

The most extensive building program in the history of the state has been started as a P. W. A. project, financed in part by the state through a special bond issue. The total amount available is $4,250,000 and will include the erection of buildings recommended by Dr. Arthur P. Noyes for several years.

Among the projects will be a new medical and surgical building, a building for tuberculous, five buildings of the continued treatment type, an administration building, a staff house, five cottages for physicians, a building for the treatment of acute recoverable cases, a laboratory, two employees' dormitories, the installation of a cafeteria for patients and one for employees, also the construction or enlargement of various service buildings.

As stated previously, Dr. Noyes has recently accepted the superintendency of the Norristown (Pa.) State Hospital.

South Carolina:

Overcrowding at the South Carolina State Hospital will be alleviated with the completion of five new ward buildings with a combined capacity of 854 beds. Contract has just been signed for a psychopathic building which will have a capacity of 200 beds. In the opinion of Dr. C. F. Williams, this will relieve the overcrowding and allow considerable space for some time to come.

The results of community education by hospital authorities are reflected in the attitude of the general public throughout the state and in the cooperative action of the Legislature which has consistently been generous in its appropriations for this hospital.

Utah:

A committee of nine has been appointed by the Governor to investigate all state institutions for the care of the mentally ill, the defective, the delinquent and the dependent. One of the principal objectives will be the creation of public sentiment for the erection of additional buildings at the State Training School at American Fork, Utah, so that the mentally defectives now in the State Hospital may be transferred to the former institution.

Application for an additional $60,000 has been made to Works Progress authorities in order to complete building projects at the Utah State Hospital inaugurated under P. W. A. but still incomplete because of lack of funds.

The Utah Mental Hygiene Society is active at the present time in an attempt to establish child guidance clinics. The program has not yet been formulated and attention is now concentrated on raising sufficient funds to inaugurate this program of preventive psychiatry.

Virginia:

Although no constructive legislation of interest to psychiatrists was passed this year, a definite, progressive program is being mapped out and will be presented to the next Legislature by a representative group of psychiatrists.

Washington:

During the past two years approximately $750,000 have been spent for new construction at the Western State Hospital and a similar amount will

be spent during the coming year. Seven new wards are being built, a new assembly hall accommodating 1250 people, new kitchens, new employees' quarters, and new occupational therapy building.

West Virginia:

In August 1933 the Huntington State Hospital opened a "private" clinic in which was placed complete diagnostic equipment; the unit itself constituting a medical and surgical service. Revenues obtained from this clinic have accumulated as an executive and emergency fund. By special act of the Legislature, the superintendent, Dr. C. T. Taylor was authorized to utilize this fund for the purchase of a farm. A four hundred and fifty acre farm was secured and is now under process of improvement so that vegetables can be produced, a dairy herd maintained and beef cattle and hogs raised for hospital consumption. In the words of Dr. Reaser, first assistant physician of the Huntington State Hospital,

> "The success of the clinic in drawing patients who would otherwise have gone out of the state to private sanitaria has been very marked, so that our incoming population shows twice as many patients who pay for their hospitalization as the legally committed patients. The result is a completely filled service and has encouraged the superintendent and Board of Control to secure a loan from W. P. A. for the construction of another story and this work is now in progress."

Wisconsin:

A special committee of the State Medical Society of Wisconsin is now engaged in making a study of laws relating to the mentally ill with a view to recommending legislative changes in the commitment laws and other needed improvements.

First International Congress of Sanatoria and Private Nursing Homes.—Announcement has been made that the First International Congress of Sanatoria and Private Nursing Homes will be held in Budapest at the end of September next. Special invitations will be sent in due course to all parties concerned. Short extracts of lectures, discussions, proposals, etc., should be sent to the following address as early as possible in order that they may be included in the official program: Committee of the First International Congress of Sanatoria and Private Nursing Homes, Budapest, Margitsziget Sanatorium.

Index for Volume 92.—In order to facilitate compilation and to ensure greater accuracy and completeness, the indices which have hitherto appeared in the May number of the Journal will this year be printed as a supplement and included in the July issue.

Book Reviews.

CRITERIA FOR THE LIFE HISTORY. By *John Dollard* (New Haven: Yale University Press, 1936.)

This book deserves the close attention of all scientists dealing with human behavior. It is essentially a study of the present state of our knowledge of the individual in society, particularly of what is somewhat vaguely called the problem of personality. The author has approached this problem in a rather new way. He is not primarily interested in what any particular science has to say about the individual, nor is he concerned with which science or sciences ought to be concerned with personality. His main aim is to find the fundamental viewpoints or axioms from which anyone dealing with individual human beings should start, be he styled sociologist, psychologist, anthropologist, psychiatrist or otherwise labelled. To find these fundamental axioms of social science Dr. Dollard has gone to the body of existing life-histories, and from a wide and intensive study of that material and from an anthropological standpoint that can best be described as "neo-functional," has attempted to lay down certain standards to which any life-history should conform, if it is to give a picture of the individual satisfactory to students of human behavior. To readers unacquainted with recent anthropological writing, his seven criteria may seem rather arbitrarily arrived at, and perhaps the reasons for selecting these seven are hardly treated fully enough. One of them (no. 1) is purely sociological and emphasizes the importance, for the life-history, of the culture into which the infant is born; (no. 2) stresses the organic character of the individual who is born into the culture; (nos. 3 to 6) direct attention to the fact that the life-history, from birth onwards, is a story of interaction between the culture and the organism, that the product which we call personality is the end result of that interaction. The other criterion, (no. 7) is a methodological one concerned with stressing the manner in which a life-history is treated or maltreated by the commentator.

These seven criteria, the culture, the organism, the family as the initial conditioning factor which the organism meets, the actual training of the organic material into cultural forms, the continuous nature of the individual's "becoming," the concrete-situational nature of a life and the way the collector handles the material, are then applied line by line and point by point to six published life-histories, one by Freud, one by Adler, one by a student of Ranke, one by H. G. Wells, one by Shaw (The Jack-Roller) and one by Thomas & Znaniecki. As might be expected, no one of these is even formally satisfactory on all counts, which is to say that no life-history yet published is satisfactory to social science in its widest sense. Dr. Dollard has not attempted to remedy this directly, nor from the point of view of this book could it reasonably be expected. His aim is not to write the perfect life-history but to show on a basis of sound social theory what the perfect, or even the scientifically acceptable, life-history should comprise.

This leads him in a final chapter to consider the present trends and basic concepts in the social sciences. He draws attention to the unfortunate fact that cultural studies are inclined to neglect the actual, real, living individual, while individual studies tend to be dealing with an unjustifiable figment, the individual divorced from culture. The concept of culture, says the author, was not discovered in the field of clinical psychology, and is simply a bit of knowledge that has not yet gotten around to them in any effective way (p. 38). A good deal of his final discussion of psychology and sociology is (consciously or unconsciously) a restatement in modern terms of Comte's methodological discussions of a century ago, and it is both interesting and significant to find a modern writer arguing vigorously that there is really only a single social science and that the so-called social sciences of to-day are merely different angles for viewing the same section of reality.

The chief value of this book to psychiatrists should be to give them some inkling of the line along which cultural students are thinking concerning the personality problem and the growth of the individual in society. Such knowledge is conspicuously absent in psychiatry, hence the wish that Dr. Dollard had devoted more time to his early and final chapters, wherein he explains and justifies his criteria and less time to showing up the scientific inadequacy of people like Ranke. One psychoanalyst would have been ample if thereby more space could have been given to developing his theoretical treatment. He rather falls between two stools in this particular. At times he appears to be writing a work upon anthropological and sociological method, at other times to be really concerned with converting the psychiatrists to his viewpoint. Those acquainted with recent anthropological literature, particularly the writings of Margaret Mead and Sapir, do not need any converting to the "group plus one" hypothesis. Those not acquainted with it may find Dr. Dollard's criteria rather dogmatically set down and his justification of them based on a series of apparent assumptions foreign and suspicious to those unacquainted with human behavior outside our own society and raised, as most psychiatrists are, on a biological diet. In other words, it is hardly likely that biologically-trained students will have as wide a knowledge of recent cultural literature as the author requires of his readers.

It is a pity that a writer urging his colleagues to pay more attention to the cultural factor should be so naive about his own culture as to suggest that little Hans' father in Freud's case history is a normal father in our own society or to assume that Mr. Wells, if teaching in an English university, would not be able to write as freely as he does. But these are minor blemishes, as also is the use of unusual words like "unclear" and the verb "to jell." Dr. Dollard has cleared the way for a new attack on personality and individual behavior by showing up the inadequacy of existing life-histories. It remains for those who call themselves scientists and who are dealing with individual lives to read this book and begin to appreciate, even if dimly, the overwhelming influence of culture upon human behavior.

C. W. M. Hart,
University of Toronto.

State Hospitals in the Depression. A study of the effects of the economic crisis on the operation of institutions for the mentally ill in the United States. (New York: National Committee for Mental Hygiene, 1934.)

This report was prepared by the National Committee as an attempt to secure accurate data as to the effects of the depression on state hospital activities and to offer to state hospital administrators the pooled experience of the methods which are being used to give maximum service to their patients in the face of reduced budgets and other difficulties.

The findings might be summarized briefly as follows:

There is no proof that actual psychoses have been increased, as gauged by mental hospital admissions, although it is taken for granted that minor degrees of mental ill health have increased in number.

Overcrowding has become more acute, due chiefly to cessation of expansion programs. Some hospitals have had to refuse admissions because of the impossibility of still further overcrowding.

Reductions in budgets for both maintenance and salaries have been common, the annual average per capita expense being reduced from $312.18 to $269.26. Therapeutic activities have not suffered greatly, in proportion to other necessary or less important hospital departments.

On the credit side, superintendents have been stimulated to new efforts in economy and organization plans, staffs have been more stable and of better quality.

These findings are all given in the first chapter, the remaining chapters giving the actual data on which these conclusions are based.

The seven appendices deal with a simple economy budget and the comments of hospital administrators on these suggested economies as well as plans many of them have put into effect to increase or maintain their efficiency. Some of these latter suggestions are as follows:

Increasing production from farm, garden and dairy, salary reductions, installation of cafeteria food service, canning all surplus fruit and vegetables, more careful scrutiny of all articles for discard. One superintendent reports increasing period of duty for staff from 8 to 12 hours, a very doubtful expedient.

Appendix 4 strikes a high note in its insistence that, whatever sacrifices may be necessary, the treatment facilities must not be interfered with, that doctors, nurses and attendants must be kept at least at the minimum standard recommended by The American Psychiatric Association. It is urged that overcrowding be resisted strongly because of its interference with proper standards of treatment, and that preventive work, through mental health clinics, be increased rather than curtailed.

The comments of the administrators in appendices 2 and 3 indicate they readily agree with these suggestions and that, whatever financial restrictions be imposed, every patient shall receive the best therapeutic attention which offers hope of restoring him to health.

State hospital administrators will find this little book both informative and useful as they deal with the problems that arise from reduced budgets and which in many instances are being still further curtailed.

GEORGE H. STEVENSON, M. D.

MÄNNER ZWISCHEN 15 UND 25 JAHREN. Mentalhygienische Untersuchungen mit besonderer Berücksichtigung der Schizophrenie. By *Trygve Braatøy*. (Oslo: Druck und Verlag von Fabritius & Sønner 1934.)

Psychiatrists of a generation ago looked upon dementia præcox as a puberty disease. This is no longer an impressionistic view since it is a statistically established fact that the onset of schizophrenia in men is at its highest between the ages of 20 and 30. The present monograph is an attempt to throw some light on the underlying factors responsible for this early onset.

Analyzing the statistical material from various advanced countries Braatøy draws attention to the mistakes which crept into previous studies and the general tendency of the medically trained statisticians to evaluate the age factor along the same lines as it is practiced in the field of pathology. Such an approach in the statistical studies of schizophrenia, he believes, is a misleading one. One may, for instance, incorrectly assume that the peak in the schizophrenia curve in men is between the ages of 20 and 30 as a result of a general susceptibility at this particular age period. This, Braatøy believes, is a superficial and unscientific way of looking at the problem since there are many other factors involved, especially the social and economic influences, particularly during years of economic crises. Discussing the question of general morbidity on the hand of Syndenstricker's statistics he points out that the lowest point in the morbidity curve for men coincides with the peak in the onset of schizophrenia and while women occupy a prominent place in the total morbidity curve they constitute only a small percentage in the schizophrenia statistics. He further argues that if one studies the general health and morbidity statistics of the total population one finds that the male population is at its best health at the schizophrenic age. Discussing the figures of the general mortality rate he comes to the conclusion that there is no particular basis for the assumption of the existence of a general decreased resistance in the third decade of man's life. His analysis of the frequency of tuberculosis in the general population and among schizophrenics is one of the most important chapters of the monograph. He refutes the impressionistic view of some psychiatrists who would want us to believe in an identity of both conditions. He points out that the age distribution for tuberculosis has not the same degree of international similarity as for schizophrenia and that while both sexes are affected by tuberculosis in equal proportion schizophrenia is more prevalent among men. This analytical study of statistical material brings the author to the conclusion that the problem of the age distribution in schizophrenia cannot be explained at the basis of a reduced resistance. Having dispelled the question of resistance the author approaches the problem from a social and economic point of view. Accepting the dictum that the schizophrenic escapes into the disease, a phrase which incidentally

the author feels should not be looked upon as a *façon de parler*, he shifts the emphasis from the disease proper to the mechanism of the flight. In this connection he discusses the problem of unemployment, movement from the farm to the city and emigration. On hand of well documented statistics he points out that men wander out in largest numbers at the schizophrenic age while women emigrate in fewer numbers and at a later age. It is rather significant that mental health, prosperity, and marriage should go together. Interesting in this respect are the figures cited by the author indicating lower percentages for emigration and mental disease, and a general higher economic status in Denmark as compared with conditions in Norway. This apparent close relationship between pathology and sociology is further emphasized by the higher mortality rate from tuberculosis in Norway than in Denmark. Braatøy feels that these facts may explain to some extent the occasional coincidence observed between tuberculosis and schizophrenia, both probably depending upon common sociologic factors. He then raises the question concerning the forces that make man between 15 and 25 leave home or run away into the disease. Why, asks Braatøy, doesn't he react some other way? He thinks that the young man runs away from the social impact because he is not able to put up a fight; he cannot "show his teeth." This brings him to the consideration of aggressiveness, delinquency, and crime, and their relationship to schizophrenia. Again with the aid of numerous statistical compilations the author brings forth the fact that at the schizophrenic age man is faced with severe social and economic problems and unless he has firmly established his social security he is in a precarious state. He explains along similar lines of reasoning the high percentage of crime among those who forsake the farm and village for the large city, where they can lose their identity and where they can give vent to their anti-social drives.

He shows how men beginning with the age of 15 are confronted with the social impact and how as a result of this encounter certain changes in the nature of "social splitting processes" take place. At this age society ceases to look upon the asocial tendencies as simple problems which can be remedied by educational care; society begins to treat these adolescents as delinquents and criminals. Discussing further the changes that have taken place in the whole life span of man during the last hundred years Braatøy points out the discrepancy between the general improvement in the living standards as reflected in the notable decrease in the mortality rate from tuberculosis, and the lack of any improvement in the 15 to 25 year period. In fact young men between 15 and 25 have surpassed in recent years their elders in crime statistics. Emigration, which is usually determined by unemployment, is also the highest in this critical age group.

Discussing the sex problem Braatøy feels that the sexual conflicts in man begin at puberty and continue to exist during the trying years of social adjustment until he has reached a better or a worse social station in life. As an indicator of adjustment he takes into consideration the age of marriage. He feels that both the sexual and social conflicts begin at puberty and con-

tinue up to the age of marriage. The author, however, believes that the overt sexual implication at this period and its influence on the general mental state of the individual is self-evident.

The conclusion the author draws is that schizophrenia frequently runs parallel with social pressure and that the schizophrenic is the victim of the social assault.

In a separate chapter he discusses the problem of schizophrenia in women. As it is, of course, a known fact, women are less frequently subject to schizophrenia at the age when men are mostly affected; they have their highest peak at the 30 to 40 age period. The explanation, according to Braatøy, is that women are not affected in the 15 to 25 age period by the social pressure as directly and forcefully as men are. Braatøy points out that even in the proletarian classes the 15 year old girl is more bound to the home and her family than her 15 year old brother. On the whole, the separation from childhood home and childhood years in general does not represent for the woman the same jump into the unknown or isolation but simply a change from one home to another where somebody again steps in and spares her from the direct struggle for existence. To this is to be added the fact that woman is longer and stronger attached to her childhood home thus having a shorter isolation period than man has. There is another important point, according to Braatøy, which may explain woman's lessened vulnerability. During the 15 to 25 year period, if she is at all attractive, she can utilize her "eternal feminine" weapon. In this connection Braatøy mentions Watson who says, ". . . . when business difficulties arise, when hard training periods face them, many women choose the seemingly easier road and allow some man to earn bread for two." While woman is less lonesome until the age of 30 than man is the 25 to 30 age period is a turning point in her life; it is a period when marriage chances begin to decrease. He feels that the 25 to 30 year period in the unmarried woman begins to take on an ominous coloring.

Schizophrenia among married women is explained by the fact that in this age period the adjustment to marriage makes the greatest demand and that failure may lead to a schizophrenic escape.

He closes this chapter with the suggestion that schizophrenia among unmarried women between the ages of 30 and 40 is probably due to lonesomeness. This thought is emphasized by an epigraph prefixed to the chapter and taken from Tucholsky:

> "Das ist schwer: ein Leben zu zwein.
> Nur eins ist noch schwerer: einsam zu sein."

The author is quite mindful of the problem of constitution in schizophrenia and yet he cannot help feeling that the social implications are probably the most important and he goes as far as to say that sociology rather than science of constitution will eventually open the road to the real solution of the problem of schizophrenia.

It is interesting that Braatøy came to this conception through analysis of such a variety of statistical data as general morbidity, general mortality,

tuberculosis, resistance, emigration, general movement of the population, crime, etc. His is a rather novel approach to evaluation of statistical compilations. It is not the traditional cold quantitative analysis of figures but rather a qualitative and shall we say emotional interpretation of data. This approach was somewhat of a surprise to the reviewer since he was impressed with Braatøy's introductory epigraph to the first chapter taken from Chaddock's "Principles and Methods of Statistics": "It is essential for the scientific worker to describe experience in exact terms, but not with greater exactness than the facts warrant."

If one may dissent with the author's tendency to minimize the importance of the constitutional factors in schizophrenia there can hardly be any quarrel over his emphasis on the sociologic implications.

On the whole this monograph is a scientific contribution to the cause of mental hygiene and as such will probably gain wide recognition in mental hygiene circles.

J. Notkin, M. D.

Fifty-Ninth Annual Report of Statistics of Criminal and Other Offences for the Year 1934. (Ottawa: Dominion Bureau of Statistics.)

This report represents a summary of criminal and other offences in the Dominion of Canada for the year 1934. It includes also comparative figures for the years 1876 to 1934.

The report is presented in four parts, an introduction and an historical appendix. The first part deals chiefly with indictable offences, only a small section being given over to the non-indictable crimes. By indictable is meant the more serious crimes, by non-indictable, the less serious crimes. Part II deals with the juvenile delinquencies. Part III reviews the number of cases dealt with by the different courts, and part IV reviews miscellaneous items, such as police statistics, prison statistics, pardons, executions, etc.

There were 366,152 trials in Canada during the year ending September, 1934, of which 37,408 were indictable and 328,744 non-indictable cases. Comparing these figures with those of 1933; there were 331,600 trials of which 38,927 were indictable and 292,673 non-indictable. There is a decrease in the number of convictions for indictable offences, an increase in the number of convictions for non-indictable offences with an increase in the total number of convictions for both indictable and non-indictable offences. There is a table which deals with the ratios of convictions to charges for each of the provinces, showing that during ten years, 1925 to 1934 inclusive, the greatest proportion of convictions is found in Saskatchewan, where 90.89 per cent of all cases tried were convicted. The other provinces are in order: Manitoba, Alberta, British Columbia, Yukon and North West Territories, New Brunswick, Ontario, Quebec, Nova Scotia, and Prince Edward Island with 69.50 per cent which is the lowest percentage of convictions. It is interesting to note that the ratio of convictions to charges for Canada has increased

from 79.41 per cent of all charges in 1925 to 84.70 per cent in 1934, which is greater than the ten year average of 81.83 per cent.

There are many tables giving information concerning indictable offences.

Multiple Convictions.—There were 29,386 persons convicted of one indictable offence and 2298 convicted of two or more offences as compared with 17,744 and 1273 in 1928.

Indictable Offences by Classes and Crimes.—The following is the number of convictions for each of the six classes of indictable offences: offences against the person, 3588; against property with violence, 4238; against property without violence 15,853; malicious offences against property, 484; forgery 690; and miscellaneous group 6831. There were 1258 fewer convictions for indictable offences during 1934 than during 1933.

Female Offenders.—The total number of female offences in 1934 is 3145 as compared with 2660 in 1930. A decrease is shown for the first time since 1931 both in the number and proportion to total convictions, of females in Canada convicted of indictable offences.

Recidivism.—The percentage of the total number of persons convicted for the first time as compared with those convicted more than once during the five years 1930 to 1934, is the lowest in the five year period. Second convictions show a slight increase in 1934, while the percentage of those convicted three or more times is the highest in the five year period.

Sentences.—Comparing the figures of 1934 with those of 1933, there is a slight decrease in the percentage given fines, sentenced to the penitentiaries and awarded suspended sentence. There is an increase in the percentage of those sentenced to common goals and reformatories.

The largest number of persons convicted of indictable offences come from the laboring class. The greater number of them are single. With regard to the educational status of persons convicted of indictable offences, by far the greatest proportion of them has had an elementary education.

Juvenile delinquents are dealt with under the two headings, those committing major offences and those committing minor offences. In 1934, there was a total number of 9448 cases brought before the courts which is an increase of 586 as compared with 1933. There is an increase of 322 charged with major offences and an increase of 264 charged with minor offences. With regard to juveniles dealt with in the courts more than once, statistics show that the proportion of repeaters has not varied materially during the ten years, that approximately one of every four delinquents has been in court before, that one in nine has been convicted once before and that one in six has been delinquent more than once before. Concerning the disposition of delinquents, we find that in the period from 1924 to 1934, the greater number of them were either released on probation under supervision of the court or had their sentence suspended. Very few received corporal punishment.

In 1934, of the criminal cases 1389 were tried by jury; 3037 were tried by judges without a jury; and 32,982 cases were tried by magistrates. There were 328,744 convictions of non-indictable offences by magistrates. In the

juvenile court proceedings there was a total of 9448 juvenile offences of which 6364 were major offences and 3084 were minor offences.

The last section of this summary gives comparative figures for the years 1876 to 1934. In 1876 there were 28,215 convictions for all offences with 714 convictions per 100,000 population as compared with 368,234 convictions for all offences and 3549 convictions per 100,000 population in 1934. It is rather interesting to note that the ratio of convicted persons sent to reformatories to those convicted persons receiving other types of sentence has not increased over this period of time but has remained approximately the same. The ratio of convicted persons whose sentence was suspended to those convicted persons receiving other types of sentence has increased from 1.6 per cent in 1877 to 21.4 per cent in 1934.

Miriam M. Winston, M. A.,
Toronto.

The Improvement of Reading. A Program of Diagnostic and Remedial Methods. Revised Edition. By *Arthur I. Gates*. (New York: Macmillan & Co., 1935.)

The reviewer has enjoyed this very meaty book and wishes to congratulate Professor Gates on his very valuable contribution.

The reviewer's remedial teacher's staff have used Gates' material as presented in the first edition of this book for several years. They have found it one of the most helpful works available in the diagnosis and treatment of remedial reading cases. The present edition, based on further findings, should be even more valuable.

The order of the presentation has also been changed, and in our opinion improved. It progresses "as a diagnostician should progress, namely, from a survey of a class to a study of milder cases to a study of more serious cases, and finally to the consideration of extreme problems." The first section of the book is devoted to diagnostic and remedial techniques which can be applied by the teacher in connection with her practical teaching task, going rather explicitly into the characteristics of good reading techniques and the nature of good methods of developing them. Parts of the section will make difficult reading for the young teacher unless she has before her a copy of the tests (published separately) which he is describing, particularly so in interpreting many of the statistical tables which he presents in the body of the book. This difficulty arises from the double purpose for which the book is designed—as a "manual of directions for diagnosing and correcting defects in reading in the first eight grades," and as a specific manual for use with the copyrighted tests which the author has designed. Even without possession of the specific tests, however, the book contains much "meat" for the use of the teacher in a classroom situation.

The latter half of the book (from chapter XII on) is directed more specifically to psychologists and other experts in educational and psychological measurement and diagnosis. Here are found diagnostic techniques and recommendations for treatment of the more serious reading disabilities, including

a chapter on remedial instruction for handicapped pupils—pupils of low intelligence, deaf-mutes, etc., and "non-readers," those cases of extreme disability usually treated on a specialized basis.

At the end of the book are case studies of reading disability and several appendices giving directions for administering and scoring the author's tests, recommended books for use with pupils in remedial instruction, and a bibliography of diagnostic and remedial work in reading.

The author of this volume has spent years in studying methods of teaching reading in American schools and in the diagnosis and treatment of reading disabilities. His point of view is that of the practical educator. His premise can best be stated in his own words: "Most difficulties, ranging from the least to the most serious, are believed by the writer to be due primarily to failures to acquire techniques that might have been acquired had the right guidance been given at the right time."

Whatever may be one's personal viewpoint regarding this premise, the diagnostic techniques supplied by the author and the remedial methods recommended have stood the test of practical use, and are based upon controlled observation involving some thousands of cases, experimentation extending over a period of years. His evidence is impressive. Nevertheless, we find it difficult to accept as final his findings regarding the relatively unimportant part played by lefthandedness, mixed eye-and-hand dominance and lack of brain dominance in the incidence of reading difficulty. Perhaps, as the author suggests in regard to another investigator's findings (Davenport), we may "happen" to have had a large proportion of such cases in our own remedial work, and this has predisposed us to the point of view held by Dr. Orton and others. For what it may be worth, left-handed children have tended with us to have more difficulty in learning to read than right-handed children, particularly when the attempt is made to change them to the right hand; and cases of severe disability sent to us for treatment have tended to present at the same time right-left confusion, stammering, stuttering or other speech difficulties and unusual difficulty in acquiring reading, spelling and writing techniques.

Perhaps the treatment directed by us to the establishment of "unilateral dominance" has been effective—as Gates suggests—due to the emphasis upon left-to-right orientation, which has been neglected or inadequately emphasized in the initial teaching situation, rather than to the final establishment of the hypothetical "dominance." At any rate, it has been effective; and we have no quarrel with the techniques given by Gates for the acquisition of this left-to-right orientation, and whole-heartedly indorse his general remedial program.

We might wish the program to be somewhat broader. His case 8 is in point. Here he presents the case of a girl whose home situation would appear to be at least a contributory cause in a general picture of emotional instability, with the reading disability a symptom among many. Yet this symptom appears to have been treated in isolation—the little girl was taught to read. It is a little obscure to us why an investigation of the home environ-

ment is indicated if the remedial treatment is to be confined to teaching the youngster to read. As Gates himself says of such cases, "difficulty in reading is merely a phase of a larger problem in adjustment." Perhaps the larger problem in adjustment was handled in this case; if so, the presentation of such cases would be of added value if some report of this treatment were included.

In short, we feel that a reading disability is more often than not part of a larger problem and has its roots in many factors—only one of which may be "failures to acquire techniques that might have been acquired had the right guidance been given at the right time"—if by guidance he means, as he appears to do, the guidance given by the teacher in the specific task of acquiring a reading ability.

This matter of acquiring appropriate techniques is, nevertheless, an important factor and one over which the teacher has immediate control. Gates' book should be in the hands of classroom teachers and educational supervisors even more than on the shelves of psychologists and other experts—for its immediate, practical value in avoiding reading disabilities which arise as a result of failure on the part of the child to acquire a correct technique and for its value in the detection and treatment of such disabilities.

V. V. Anderson, M. D.

Vie et Survie. By *Edgar Emmanuel Bonnet.* (Paris: Massageries Hachette, 1934.)

In this extensive scholastic monograph the author revives the contention of the vitalistic school of psychology with its dualism of mind and body and an attempt to prove that memories and remembrances are not lost with the death of the individual. One deals here with the Lamarkian point of view but instead of transmission of acquired characteristics, one finds here the transmission of intellectual qualities. There are numerous quotations and references to biology, evolution, immunology, neurology, etc. There is such an excellent knowledge of modern scientific literature and the quotations seem to be so apt that the non-critical reader might conclude that the author has actually found the proofs of his theories in modern science.

The whole process of immunity, for example, is explained in terms of cells retaining and transmitting certain memories when they were surrounded by inimical forces so that future generation of cells are born with well-established immunity toward destructive agents.

In spite of the author's intelligence, erudition and ingenuity, it is quite obvious that we are dealing with a psuedo-scientific rather than an objective scientific presentation of his material, although on the other hand one cannot help but admire the author's courage in defending a difficult position, and his absence of dogma.

J. Kasanin, M. D.

Elgin State Hospital Papers Collected and Contributed. Vol. II. (Elgin: 1936.)

This brochure of 275 pages contains 30 papers on psychiatric subjects written by members of the staff of the Elgin State Hospital, a considerable number of them having been read at various medical association meetings. This respectable body of work carried on under the direction of Dr. Charles F. Read, managing officer of the hospital, gives evidence of the spirit of scientific inquiry which may be developed in connection with the routine activities of a busy state hospital service.

Dr. Peter Bassoe who contributes a foreword to the volume sums up its contents as follows:

"Just a glance at the titles disproves the altogether too common impression that patients in state hospitals merely receive lodging, board, and routine treatment of complicating physical ailments. In this hospital every kind of therapeutic approach justified by sound reasoning or practical experience has been made. Selected groups of patients have been given, under proper control, various kinds of fever, drug, and endocrine treatment, and individual and group psychotherapy. Training of nurses and attendants, and nursing care, occupational and recreational activities for patients receive deserved emphasis. An interesting innovation recorded in the previous volume is the training of a group of theological students who serve as attendants and recreational directors during the summer months. The further experience with the experiment recorded in this volume shows that it has benefited the patients and that the students go forth to their profession enriched with a deeper understanding of human nature."

C. B. F.

In Memoriam.

IVAN PETROVITCH PAVLOV.

1849–1936.

Academician I. P. Pavlov, known throughout the world for his work on the higher nervous activities of man and his studies of the digestive secretions, died on February 27, 1936, in Leningrad, at the age of 86, following an attack of influenza which developed into double pneumonia.

Ivan Petrovitch Pavlov was born at Riazian in Moscow Province, Russia, on September 26, 1849. His father was a country parish priest, who, though poor, believed in liberal education, freedom of thought and athletics. As a child Pavlov was delicate, but games, exercise and outdoor life improved his health. At the age of 11 years he entered the church (Greek Catholic) school and later continued his studies in the theological seminary. In this institution students were allowed wide scope and Pavlov became interested in natural science.

In 1870 he entered St. Petersburg University, where he had as teachers Mendeleeff and Butlerov, but his career may be said to have commenced at the Medico-Chirurgical Academy, for he became interested in physiology as taught by Professor E. von Cyon and Professor Sechnov. While an undergraduate Pavlov published his first paper (1877) on "Accommodation Mechanism of the Blood Vessels."

After graduation in 1879 he engaged in laboratory work in the Medical Clinic at the Military Academy under Professor Botkin. Thus early in his career he became acquainted with clinical problems. His work at the clinic must have been outstanding, because at the end of five years he was awarded the Wylie Fellowship, which enabled him to work for two years under Ludwig in Leipzig and Heidenhain in Breslau.

In 1886 he returned to his former position in the Military Medical Academy and commenced his work on the physiology of digestion. From this time, throughout the rest of his long life,

Pavlov made periodic contributions of major importance in his chosen field of physiology.

In 1888 he described the secretory nerves of the pancreas, and a year later he reported experiments on sham feeding. Up to this time physiologists were, for the most part, content with acute, non-recovery experiments. Pavlov was one of the first physiologists who applied the principles of Pasteur and Lister to physiological problems, and just as the scope of surgery was extended by asepsis, so was the field of physiological research. Pavlov became a skilful and up-to-date surgeon.

In 1890 he became professor of pharmacology in the St. Petersburg Medical Academy and the following year head of the department of physiology in the new Institute of Experimental Medicine. He gave up teaching pharmacology in 1895, when he obtained the chair of physiology in the Medico-Chirurgical Academy. In 1897 he published his classical monograph on the digestive glands.

In 1902 when Bayliss and Starling announced their work on secretin, Pavlov immediately repeated and confirmed their work. He had previously considered that nervous control was the essential factor in the secretion of digestive juice, but with the discovery of secretin he apparently foresaw clearly that the development of the knowledge of digestion would henceforth be largely in the hands of biochemists. He discontinued his investigations of the physiology of digestion.

Pavlov was a careful and accurate observer. In his earlier experiments he repeatedly noticed that hearing of footsteps of the attendant who fed the animals, seeing food, or smelling food might cause an animal to secrete saliva or gastric juice. He began to consider that the functions of the brain were based on reflex action similar to those of the spinal cord. He commenced to devise experiments to prove this hypothesis. These experiments on "conditioned reflexes" occupied the last 30 years of his life.

During the Russian revolution Pavlov continued his researches, and although he was a Czarist, he was not disturbed in his work. It is said that once during the revolution his experiments were disturbed by noisy groups of soldiers. In great anger he rushed to the steps of the building, sent for the leader, and commanded that the troops be taken away and kept away, since they were disturbing his experiments. He was obeyed.

Pavlov had a dominant personality. He attracted to his laboratory large numbers of students and assistants, and he was loved, honored, and even worshipped by them. He created a school of the physiology of digestion, and later a school of physiology of the nervous system. These groups were motivated and inspired to action by this outstanding and energetic man.

Pavlov was punctual in keeping appointments, temperate in all things and regular in habits. He worked incessantly during the teaching term, but took three months' holiday each year. During his life he travelled widely. He was a great lecturer because he had a clear conception of things and was able to impart a clear picture to his students. He had a great memory for things in which he was interested. He had a one-track mind. He handed over the care of his home to his wife and totally abandoned himself to his problems. He did not even read newspapers or periodicals, but relied on his wife to keep him informed of the outside world. He loved art like all research men and loved music like all Russians. He was passionately fond of flowers. He played "Gorodki" with his assistants almost to the time of his death. During conversation he flourished his arms and his face became animated. He was vivacious and demonstrative. He had great vigor and vitality and was filled with energy and enthusiasm.

Many honors were paid to Pavlov both at home and abroad. He was awarded the Nobel Prize in 1904. He was a Fellow of the Royal Society of London and received the Copley Medal in 1915. He received the Charles Mickle Prize of the University of Toronto in 1921. He was a member of the Russian Academy of Science. As well as these, he was an honorary member of many foreign societies. In 1935 he was president of the International Physiological Congress which met at Leningrad and Moscow.

So great is the regard for science in the Soviet Union that in recent years they have built for Pavlov immense laboratories at the cost of 8,000,000 rubles. They provided him with abundant facilities and assistants to carry on research work. Across the front of the building was Pavlov's motto—"Observe and observe." He was a national hero. His four books were widely read and their substance interpreted to the people. He died amidst the heartfelt adoration of his countrymen. The closer they were to him the more they felt his loss.

Acknowledging the exceptional services Pavlov rendered to the people of the Soviet Union, the Council of Peoples Commissars of the U. S. S. R. decided to perpetuate his memory by establishing a monument to him on one of the central squares of Leningrad; to rename the First Leningrad Medical Institute the Pavlov Institute; to instruct the Academy of Sciences of the U. S. S. R. to publish his complete works in Russian, English, French and German; to preserve his brain in the Brain Institute in Moscow; to preserve as a museum his Leningrad study and laboratory in the All-Union Institute of Experimental Medicine; and to grant his widow a personal pension of 1000 rubles a month. All expenses incurred were to be charged to the state.

All who knew Academician Pavlov were charmed by his kindly personality. His long life was crowded with scientific achievement for the benefit of mankind. He was indeed a citizen of the world. Advancing years did not dampen his enthusiasm or decrease his productiveness. His boldness in research, his dexterity in experimentation, his untiring energy and his power of original thought led to new schools of research physiology. Pavlov's name will live.

F. G. BANTING.